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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* JANET LYNN TIBBERTS

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Appeal 2020-000138  
Application 14/930,643  
Technology Center 3600

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Before JOHNNY A. KUMAR, LARRY J. HUME, and  
MATTHEW J. MCNEILL, *Administrative Patent Judges*.

HUME, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision rejecting claims 1–6, and 8–17, which are all rejections pending in the application. Appellant has canceled claim 7. *See* Final Act. 2. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> We use the term “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. The subject application was not assigned. Accordingly, the Real Party in Interest is the inventor Janet Tibberts. Appeal Br. 2.

## STATEMENT OF THE CASE<sup>2</sup>

The claims are directed to a system and method of scheduling classes for a timely matriculation. *See* Spec. (Title). In particular, Appellant’s disclosed embodiments and claimed invention “relate[] to software applications that are used to schedule classes in an institution of learning, such as a college or university. More particularly, the present invention relates to systems that track a student’s progress in matriculating toward a selected degree in order to achieve the degree in the shortest, most cost efficient manner.” Spec. 1. 6–13.

### *Exemplary Claim*

Claim 1, reproduced below, is representative of the subject matter on Appeal (*emphases* added to contested prior-art limitations):

1. A system for scheduling courses at an institution, wherein said institution offers a variety of courses in different semesters and has various course requirements for graduation, said system comprising:
  - an administrative computer that maintains a computer database, wherein said computer database contains said variety of courses and said course requirements for graduation;
  - a computer network for providing access to said administrative computer to students of said institution;
  - a student computer accessible by a student that has a major, a graduation date, and has previously completed some of

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<sup>2</sup> Our decision relies upon Appellant’s Appeal Brief (“Br.,” filed Mar. 25, 2019); Examiner’s Answer (“Ans.,” mailed July 23, 2019); Final Office Action (“Final Act.,” mailed Sept. 5, 2018); and the original Specification (“Spec.,” filed Nov. 2, 2015). Appellant did not file a Reply Brief in response to the factual findings and legal conclusions in the Examiner’s Answer.

a variety of courses offered by said institution, wherein said student computer accesses said computer database through said computer network, and wherein said student computer has a display;

*said student computer being programmed to schedule courses for an upcoming semester, wherein said student computer initially filters said variety of courses available for selection by eliminating courses that have been completed by the student, eliminates courses that do not serve as one of said course requirements for said major of the student, and eliminates courses that have prerequisites yet unattained by the student, therein creating filtered course offerings;*

*wherein the student uses the student computer to select courses from said filtered course offerings, therein creating scheduled courses, wherein said student computer automatically updates said filtered course offerings after each selection of a course to eliminate any of said variety of courses that conflict in date and time with scheduled courses; and*

wherein said student computer generates a graphical indication on said display that indicates whether or not said scheduled courses are sufficient to complete said course requirements for graduation by said graduation date and how many credits should be taken in the semester being scheduled to complete said course requirements for graduation by said graduation date.

## REFERENCES

The prior art relied upon by the Examiner as evidence is:

<b>Name</b>	<b>Reference</b>	<b>Date</b>
Shaver	US 2006/0105315 A1	May 18, 2006
Adams	US 2010/0223194 A1	Sept. 2, 2010
Liu et al. ("Liu")	US 2016/0089572 A1	Mar. 31, 2016

REJECTIONS<sup>3</sup>

R1. Claims 1–6, and 8–17 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Final Act. 2.

R2. Claims 1–6, and 8–9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Adams, Shaver, and Liu. Final Act. 5.

R3. Claims 10, and 13–15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Adams. Final Act. 7.

R4. Claims 11 and 12 stand rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Adams and Shaver in view of the Examiner’s taking of Official Notice. Final Act. 8.

R5. Claim 16 stands rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Adams and Shaver. Final Act. 9.

R6. Claim 17 stands rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Adams and Shaver in view of the Examiner’s taking of Official Notice. *Id.*

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<sup>3</sup> We note the Examiner has withdrawn the indefiniteness rejection of claims 1–6, 8, 9, and 16–17 under 35 U.S.C. § 112(b). *See generally* Advisory Action mailed Mar. 1, 2019.

## CLAIM GROUPING

Based on Appellant’s arguments (Br. 6–18) and our discretion under 37 C.F.R. § 41.37(c)(1)(iv), we decide the appeal of patent-ineligible subject matter Rejection R1 of claims 1–6, and 8–17 on the basis of representative claim 1; we decide the appeal of obviousness Rejection R2 of claims 1–6 and 8–9 on the basis of representative claim 1; we decide the appeal of obviousness Rejection R3 of claims 10 and 13–15 on the basis of representative claim 10; and we decide the appeal of obviousness Rejection R4 of claims 11 and 12 on the basis of representative claim 11.

We address Rejections R5 and R6 of remaining claims 16, and 17, *infra*.<sup>4</sup>

## ISSUES AND ANALYSIS

In reaching this decision, we consider all evidence presented and all arguments actually made by Appellant. To the extent Appellant has not advanced separate, substantive arguments for particular claims, or other issues, such arguments are waived. 37 C.F.R. § 41.37(c)(1)(iv).

We disagree with Appellant’s arguments with respect to claims 1–6 and 8–17 and, unless otherwise noted, we incorporate by reference herein and adopt as our own: (1) the findings and reasons set forth by the Examiner

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<sup>4</sup> “Notwithstanding any other provision of this paragraph, the failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately.” 37 C.F.R. § 41.37(c)(1)(iv). In addition, when Appellant does not separately argue the patentability of dependent claims, the claims stand or fall with the claims from which they depend. *In re King*, 801 F.2d 1324, 1325 (Fed. Cir. 1986).

in the action from which this appeal is taken, and (2) the reasons and rebuttals set forth in the Examiner’s Answer in response to Appellant’s arguments. We highlight and address specific findings and arguments regarding claims 1 and 10 for emphasis as follows.

1. § 101 Rejection R1 of Claims 1–6, 8–17

Issue 1

Appellant argues (Br. 7–9) the Examiner’s rejection of claim 1 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter is in error. These contentions present us with the following issue:

Under the USPTO’s Revised Guidance, informed by our governing case law concerning 35 U.S.C. § 101, is claim 1 patent-ineligible under § 101?

Principles of Law

A. 35 U.S.C. § 101

An invention is patent-eligible if it is a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101.<sup>5</sup> However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *Mayo Collaborative Servs. v. Prometheus Labs.*,

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<sup>5</sup> This threshold analysis of whether a claim is directed to one of the four statutory categories of invention, i.e., a process, machine, manufacture, or composition of matter, is referred to as “*Step 1*” in the USPTO’s patent-eligibility analysis under § 101. MPEP § 2106.

*Inc.*, 566 U.S. 66, 70 (2012) (brackets in original) (citing *Diamond v. Diehr*, 450 U.S. 175, 185 (1981)).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 217–18 (2014) (citing *Mayo*, 566 U.S. at 75–77). In accordance with that framework, we first determine what concept the claim is “directed to.” See *Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk.”); see also *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4 in petitioners’ application explain the basic concept of hedging, or protecting against risk . . .”).

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diehr*, 450 U.S. at 191); “tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1853))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held “[a] claim drawn to subject matter otherwise statutory

does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 187; *see also id.* at 191 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). Having said that, the Supreme Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* (citation omitted) (citing *Benson* and *Flook*); *see, e.g., id.* at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”).

Abstract ideas may include, but are not limited to, fundamental economic practices, methods of organizing human activities, and mathematical formulas or relationships. *Alice*, 573 U.S. at 217–21. Under this guidance, we must therefore ensure at step one that we articulate what the claims are directed to with enough specificity to ensure the step one inquiry is meaningful. *Id.* at 217 (“[W]e tread carefully in construing this exclusionary principle lest it swallow all of patent law.”).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must examine the elements of the claim to determine whether it contains an “inventive concept”” sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221 (citation omitted). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the

[abstract idea].” *Id.* (alterations in original) (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

## B. USPTO Revised Guidance

The PTO published revised guidance in the Federal Register concerning the application of § 101. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (January 7, 2019) (hereinafter “Revised Guidance”) (<https://www.govinfo.gov/content/pkg/FR-2019-01-07/pdf/2018-28282.pdf>).

Under the Revised Guidance, we first look to whether the claim recites:

(1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes);<sup>6</sup> and

(2) additional elements that integrate the judicial exception into a practical application (*see* Manual for Patent Examining Procedure (“MPEP”) §§ 2106.05(a)–(c), (e)–(h)).<sup>7</sup>

*See* Revised Guidance 52–53.

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look to whether the claim:

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<sup>6</sup> Referred to as “*Revised Step 2A, Prong 1*” in the Revised Guidance (hereinafter “*Step 2A(i)*”).

<sup>7</sup> Referred to as “*Revised Step 2A, Prong 2*” in the Revised Guidance (hereinafter “*Step 2A(ii)*”).

(3) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or

(4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.<sup>8</sup>

*See* Revised Guidance 56.

*Step 2A(i) – Abstract Idea*

Informed by our judicial precedent, the Revised Guidance extracts and synthesizes key concepts identified by the courts as abstract ideas to explain that the abstract idea exception includes the following groupings of subject matter, when recited as such in a claim limitation:

(a) Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations;

(b) Certain methods of organizing human activity — fundamental economic principles or practices (including hedging, insurance, mitigating risk); commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions); and

(c) Mental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion).

Revised Guidance 52 (footnotes omitted).

Under the Revised Guidance, if the claim does not recite a judicial exception (a law of nature, natural phenomenon, or subject matter within the

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<sup>8</sup> Items (3) and (4) continue to be collectively referred to as “*Step 2B*” of the Supreme Court’s two-step framework, described in *Mayo* and *Alice*.

enumerated groupings of abstract ideas above), then the claim is patent-eligible at *Step 2A(i)*. This determination concludes the eligibility analysis, except in situations identified in the Revised Guidance.<sup>9</sup>

However, if the claim recites a judicial exception (i.e., an abstract idea enumerated above, a law of nature, or a natural phenomenon), the claim requires further analysis for a practical application of the judicial exception in *Step 2A(ii)*.

*Step 2A(ii) – Practical Application*

If a claim recites a judicial exception in *Step 2A(i)*, we determine whether the recited judicial exception is integrated into a practical application of that exception in *Step 2A(ii)* by: (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception(s); and (b) evaluating those additional elements individually and in combination to determine whether they integrate the exception into a practical application.

The seven identified “practical application” sections of the MPEP,<sup>10</sup> cited in the Revised Guidance under *Step 2A(ii)*, are:

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<sup>9</sup> In the rare circumstance in which an examiner believes a claim limitation that does not fall within the enumerated groupings of abstract ideas should nonetheless be treated as reciting an abstract idea, the procedure described in of the Guidance for analyzing the claim should be followed. *See* Revised Guidance, Section III.C.

<sup>10</sup> *See* MPEP §§ 2106.05(a)–(c), (e)–(h). Citations to the MPEP herein refer to revision [R-08.2017]. Sections 2106.05(a), (b), (c), and (e) are indicative of integration into a practical application, while §§ 2106.05(f), (g), and (h) relate to limitations that are not indicative of integration into a practical application.

- (1) MPEP § 2106.05(a) Improvements to the Functioning of a Computer or To Any Other Technology or Technical Field
- (2) MPEP § 2106.05(b) Particular Machine
- (3) MPEP § 2106.05(c) Particular Transformation
- (4) MPEP § 2106.05(e) Other Meaningful Limitations
- (5) MPEP § 2106.05(f) Mere Instructions To Apply An Exception
- (6) MPEP § 2106.05(g) Insignificant Extra-Solution Activity
- (7) MPEP § 2106.05(h) Field of Use and Technological Environment

*See Revised Guidance 55.*

If the recited judicial exception is integrated into a practical application as determined under one or more of the MPEP sections cited above, then the claim is not directed to the judicial exception, and the patent-eligibility inquiry ends. *See Revised Guidance 54.* If not, then analysis proceeds to *Step 2B*.

*Step 2B – “Inventive Concept” or “Significantly More”*

Under our reviewing courts’ precedent, it is possible that a claim that does not “integrate” a recited judicial exception under *Step 2A(ii)* is nonetheless patent eligible. For example, the claim may recite additional elements that render the claim patent eligible even though one or more claim elements may recite a judicial exception.<sup>11</sup> The Federal Circuit has held claims eligible at the second step of the *Alice/Mayo* test (USPTO *Step 2B*) because the additional elements recited in the claims provided “significantly more” than the recited judicial exception (e.g., because the additional

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<sup>11</sup> *See, e.g., Diehr*, 450 U.S. at 187.

elements were unconventional in combination).<sup>12</sup> Therefore, if a claim has been determined to be directed to a judicial exception under *Revised Step 2A*, we must also evaluate the additional elements individually and in combination under *Step 2B* to determine whether they provide an inventive concept (i.e., whether the additional elements amount to significantly more than the exception itself).<sup>13</sup>

Under the Revised Guidance, we must consider in *Step 2B* whether an additional element or combination of elements: (1) “Adds a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field, which is indicative that an inventive concept may be present;” or (2) “simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present.” *See* Revised Guidance, Section III.B.<sup>14</sup>

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<sup>12</sup> *See, e.g., Amdocs, Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1300, 1304 (Fed. Cir. 2016); *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349–52 (Fed. Cir. 2016); *DDR Holdings v. Hotels.com, L.P.*, 773 F.3d 1245, 1257–59 (Fed. Cir. 2014).

<sup>13</sup> The patent eligibility inquiry may contain underlying issues of fact. *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1325 (Fed. Cir. 2016). In particular, “[t]he question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018).

<sup>14</sup> In accordance with existing *Step 2B* guidance, an Examiner’s finding that an additional element (or combination of elements) is well understood, routine, conventional activity must be supported with at least one of the four specific types of evidence required by the USPTO *Berkheimer*

In the *Step 2B* analysis, an additional element (or combination of elements) is not well-understood, routine or conventional unless the examiner finds an evidentiary basis, and expressly supports a rejection in writing with, one or more of the following:

1. A citation to an express statement in the specification or to a statement made by an applicant during prosecution that demonstrates the well-understood, routine, conventional nature of the additional element(s). . . .
2. A citation to one or more of the court decisions discussed in MPEP § 2106.05(d)(II) as noting the well-understood, routine, conventional nature of the additional element(s).
3. A citation to a publication that demonstrates the well-understood, routine, conventional nature of the additional element(s). . . .
4. A statement that the examiner is taking official notice of the well-understood, routine, conventional nature of the additional element(s). . . .

*See Berkheimer Memo 3–4.*

If the Examiner or the Board determines under *Step 2B* that the element (or combination of elements) amounts to significantly more than the exception itself, the claim is eligible, thereby concluding the eligibility analysis.

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Memorandum, as shown above. For more information concerning evaluation of well-understood, routine, conventional activity, *see* MPEP § 2106.05(d), as modified by the USPTO *Berkheimer* Memorandum (USPTO Commissioner for Patents Memorandum dated Apr. 19, 2018, “Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (*Berkheimer v. HP, Inc.*)” (hereinafter “*Berkheimer Memo*”).

However, if a determination is made that the element and combination of elements do not amount to significantly more than the exception itself, the claim is ineligible under *Step 2B*, and the claim should be rejected for lack of subject matter eligibility.

*Analysis*

*Step 1 – Statutory Category*

Claim 1, as a system (machine) claim, recites one of the enumerated categories of eligible subject matter in 35 U.S.C. § 101. Therefore, the issue before us is whether it is directed to a judicial exception without significantly more.

*Step 2A(i): Does the Claim Recite a Judicial Exception?*

The Examiner determined that the limitations of claim 1 “recite a process that, under its broadest reasonable interpretation, covers performance of the limitations in the mind but for the recitation of generic computer components. . . . [because] nothing in the claim elements precludes the steps from practically being performed in the mind.” Final Act. 4. Further, “creating a schedule of courses for a semester is a mental concept (and a certain method of organizing human activities (i.e., a way to create a course schedule for a student)) that students and/or guidance counsellors have traditionally performed.” Final Act. 4–5.

We conclude claim 1 does not recite the judicial exceptions of either natural phenomena or laws of nature. We evaluate, *de novo*, whether claim 1 recites an abstract idea based upon the Revised Guidance.

First, we look to the Specification to provide context as to what the claimed invention is directed to. In this case, the Specification discloses that the invention “relates to software applications that are used to schedule classes in an institution of learning, such as a college or university. More particularly, the present invention relates to systems that track a student’s progress in matriculating toward a selected degree in order to achieve the degree in the shortest, most cost efficient manner.” Spec. 1, ll. 6–13.

Appellant’s Abstract describes the invention as:

A system and software for scheduling courses at an institution that offers a variety of courses in different semesters. Scheduling software is provided that is accessible to a student through a computer network. The scheduling software filters courses being offered by eliminating courses that have been previously completed by the student. Courses that do not serve as one of the student’s course requirements are also filtered. Likewise, courses that have prerequisites yet unattained by the student are filtered. After the initial filtering process, the student is presented with filtered course offerings. The student selects courses from the filtered course offerings, therein creating scheduled courses. The scheduling software automatically updates the filtered course offerings after each selection of a course to eliminate any of the offered courses that conflict in date and time with scheduled courses.

Spec. 28 (Abstract).

In TABLE I below, we identify in *italics* the specific claim limitations in claim 1 that we conclude recite an abstract idea. We additionally identify in **bold** the additional (non-abstract) claim limitations that are generic computer components and techniques, and underline limitations representing extra or post-solution activity:

TABLE I

Independent Claim 1	Revised Guidance
<p>A system for scheduling courses at an institution, wherein said institution offers a variety of courses in different semesters and has various course requirements for graduation, said system comprising:</p>	<p>A system (machine) is a statutory subject matter class. <i>See</i> 35 U.S.C. § 101. <i>See</i> 35 U.S.C. § 101 (“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”).</p>
<p>[L1] <b>an administrative computer</b> that maintains <b>a computer database</b>, wherein            [L1a] <u>said computer database contains said variety of courses and said course requirements</u> for graduation;</p>	<p>A computer database is a generic computer component.             Storing information (i.e., the “database contains . . . courses and . . . requirements”) is insignificant extra-solution activity. 2019 Revised Guidance; <i>see also</i> MPEP § 2106.05(g).</p>
<p>[L2] <b>a computer network</b> for providing access to said administrative computer to students of said institution;</p>	<p>A computer network is a generic computer component or construct.</p>
<p>[L3] <b>a student computer</b> accessible by a student that has a major, a graduation date, and has previously completed some of a variety of courses offered by said institution,            [L3a] <u>wherein said student computer accesses said computer database through said computer network</u>, and</p>	<p>As claimed, a student computer is a generic computer component.   <i>See buySAFE, Inc. v. Google, Inc.</i>, 765 F.3d 1350, 1355 (Fed. Cir. 2014) (computer receives and sends information over a network).</p>

Independent Claim 1	Revised Guidance
[L4] wherein said student computer has <b>a display</b> ;	As claimed, a display is a generic computer component.
said student computer being programmed to [L5] <i>schedule courses for an upcoming semester,</i>	“[S]chedul[ing] courses” is an abstract idea, i.e., a certain method of organizing human activity in the form of managing interactions between people, including teaching. See Revised Guidance 52.
[L6] wherein said student computer <i>initially filters said variety of courses available for selection by eliminating courses that have been completed by the student, eliminates courses that do not serve as one of said course requirements for said major of the student, and eliminates courses that have prerequisites yet unattained by the student, therein creating filtered course offerings;</i>	“[I]nitially filter[ing] said variety of courses” to eliminate courses that have already been completed or which have prerequisites is an abstract idea, i.e., an observation, evaluation, judgment, opinion” which could be performed as a mental process. See Revised Guidance 52.
wherein the student uses the student computer to [L7] <i>select courses from said filtered course offerings, therein creating scheduled courses,</i>	“[S]elect[ing] courses from . . . filtered course offerings . . . [and] creating scheduled courses” is an abstract idea, i.e., a certain method of organizing human activity in the form of managing interactions between people, including teaching. See Revised Guidance 52.
wherein said student computer automatically [L8] <i>updates said filtered course offerings after each selection of a</i>	“[U]pdat[ing] . . . filtered course offerings” to avoid scheduling

Independent Claim 1	Revised Guidance
<p><i>course to eliminate any of said variety of courses that conflict in date and time with scheduled courses; and</i></p>	<p>conflicts is an abstract idea, i.e., an observation, evaluation, judgment, opinion” which could be performed as a mental process. <i>See Revised Guidance 52.</i></p>
<p>wherein said student computer [L9] <u>generates a graphical indication on said display</u> that indicates whether or not said scheduled courses are sufficient to complete said course requirements for graduation by said graduation date and how many credits should be taken in the semester being scheduled to complete said course requirements for graduation by said graduation date.</p>	<p>Rendering information or an indication for display is insignificant post-solution activity. Revised Guidance 55, n.31; <i>see also</i> MPEP § 2106.05(g).</p>

Br. 19–20 (Claims App.)(bracketed labeling added).

Under the broadest reasonable interpretation standard,<sup>15</sup> and aside from any claimed computer-related aspects, we conclude limitations [L5] through [L8] identified in TABLE I above, recite abstract functions that would ordinarily be executed when selecting and scheduling courses at an

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<sup>15</sup> During prosecution, claims must be given their broadest reasonable interpretation when reading claim language in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Under this standard, we interpret claim terms using “the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

institution, whether initiated person-to-person, on paper, or using a computer. *See* Final Act. 2.

We determine that claim 1, overall, recites certain methods of organizing human activity in the form of managing personal relationships or interactions between people, including following rules or instructions. This type of activity, i.e., filtering and selecting courses to meet graduation requirements, as recited in limitations L1 through L9, for example, and aside from any computer-related aspects, includes longstanding conduct that existed well before the advent of computers and the Internet, and could be carried out by a human with pen and paper. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2011) (“That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*.”).

Thus, under *Step 2A(i)*, while we generally agree with the Examiner that claim 1 recites an abstract idea, we disagree as to the specific categorization of the various abstract ideas recited in claim 1, and to the specific characterization of claim 1, as a whole. In particular, we determine that claim 1’s “system for scheduling courses at an institution, wherein said institution offers a variety of courses in different semesters and has various course requirements for graduation,” while reciting mental processes, may overall be characterized as a certain method of organizing human activity, as discussed above.<sup>16</sup> We conclude claim 1, under our Revised Guidance,

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<sup>16</sup> Our reviewing court recognizes that “[a]n abstract idea can generally be described at different levels of abstraction.” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1240 (Fed. Cir. 2016). That need not and, in this case does not, “impact the patentability analysis.” *Id.* at 1241. Further, “[t]he Board’s

recites a judicial exception of selecting and scheduling courses at an institution, i.e., a certain method of organizing human activity, and thus recites an abstract idea.

*Step 2A(ii): Judicial Exception Integrated into a Practical Application?*

If the claims recite a judicial exception, as we conclude above, we proceed to the “practical application” *Step 2A(ii)* in which we determine whether the recited judicial exception is integrated into a practical application of that exception by: (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception(s); and (b) evaluating those additional elements individually and in combination to determine whether they integrate the exception into a practical application.

As to the specific limitations, we find limitations [L1a] and [L3a] recite insignificant extra-solution activity, and limitation [L9] recites insignificant post solution activity. The Supreme Court guides that the “prohibition against patenting abstract ideas ‘cannot be circumvented by’ . . . adding ‘insignificant postsolution activity.’” *Bilski*, 561 U.S. at 610–11 (quoting *Diehr*, 450 U.S. at 191–92). On this record, we are of the view that Appellant’s claims do not operate the recited generic computer components

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slight revision of its abstract idea analysis does not impact the patentability analysis.” *Id.* Moreover, merely combining several abstract ideas does not render the combination any less abstract. *RecogniCorp, LLC v. Nintendo Co.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017) (“Adding one abstract idea (math) to another abstract idea . . . does not render the claim non-abstract.”); *see also FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1093–94 (Fed. Cir. 2016) (determining the pending claims were directed to a combination of abstract ideas).

(limitations [L1] through [L4]) in an unconventional manner to achieve an improvement in computer functionality. *See* MPEP § 2106.05(a).

We find each of the limitations of claim 1 either recite abstract ideas, extra-solution activity, or generic computer components as identified in *Step 2A(i), supra* (see TABLE I), and none of the limitations integrate the judicial exception of scheduling courses at an institution into a practical application as determined under one or more of the MPEP sections cited above. The claim as a whole merely uses instructions to implement the abstract idea on a computer or, alternatively, merely uses a computer as a tool to perform the abstract idea.

Under analogous circumstances, the Federal Circuit has held that “[t]his is a quintessential ‘do it on a computer’ patent: it acknowledges that [such] data . . . was previously collected, analyzed, manipulated, and displayed manually, and it simply proposes doing so with a computer. We have held such claims are directed to abstract ideas.” *Univ. of Fla. Research Found., Inc. v. Gen. Elec. Co.*, 916 F.3d 1363, 1367 (Fed. Cir. 2019); *see also Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1351 (Fed. Cir. 2016) (“Though lengthy and numerous, the claims do not go beyond requiring the collection, analysis, and display of available information in a particular field, stating those functions in general terms, without limiting them to technical means for performing the functions that are arguably an advance over conventional computer and network technology.”).

We determine the claim as a whole merely uses instructions to implement the abstract idea on a computer or, alternatively, merely uses a computer as a tool to perform the abstract idea. Thus, on this record, Appellant has not shown an improvement or practical application under the

guidance of MPEP section 2106.05(a) (“Improvements to the Functioning of a Computer or to Any Other Technology or Technical Field”) or section 2106.05(e) (“Other Meaningful Limitations”).

Therefore, we conclude the abstract idea is not integrated into a practical application, and thus the claim is directed to the judicial exception.

*Step 2B – “Inventive Concept” or “Significantly More”*

If the claims are directed to a judicial exception, and not integrated into a practical application, as we conclude above, we proceed to the “inventive concept” step. For *Step 2B* we must “look with more specificity at what the claim elements add, in order to determine ‘whether they identify an “inventive concept” in the application of the ineligible subject matter’ to which the claim is directed.” *Affinity Labs*, 838 F.3d at 1258.

In applying step two of the *Alice* analysis, our reviewing court guides we must “determine whether the claims do significantly more than simply describe [the] abstract method” and thus transform the abstract idea into patentable subject matter. *Ultramarical, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014). We look to see whether there are any “additional features” in the claims that constitute an “inventive concept,” thereby rendering the claims eligible for patenting even if they are directed to an abstract idea. *Alice*, 573 U.S. at 221. Those “additional features” must be more than “well-understood, routine, conventional activity.” *Mayo*, 566 U.S. at 79.

Limitations referenced in *Alice* that are not enough to qualify as “significantly more” when recited in a claim with an abstract idea include, as non-limiting or non-exclusive examples: adding the words “apply it” (or an

equivalent) with an abstract idea<sup>17</sup>; mere instructions to implement an abstract idea on a computer<sup>18</sup>; or requiring no more than a generic computer to perform generic computer functions that are well-understood, routine and conventional activities previously known to the industry.<sup>19</sup>

Evaluating representative claim 1 under step 2 of the *Alice* analysis, we conclude it lacks an inventive concept that transforms the abstract idea of scheduling courses at an institution into a patent-eligible application of that abstract idea.

The patent eligibility inquiry may contain underlying issues of fact. *Mortg. Grader*, 811 F.3d at 1325. In particular, “[t]he question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact.” *Berkheimer*, 881 F.3d at 1368.

As required under *Berkheimer*, the Examiner provides a particular type of evidence of the well-understood, routine, and conventional nature of the recited computer function<sup>20</sup> by concluding, “[t]he courts have recognized the following computer functions as well-understood, routine, and conventional functions when they are claimed in a merely generic manner

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<sup>17</sup> *Alice*, 573 U.S. at 221–23.

<sup>18</sup> *Alice*, 573 U.S. at 222–23, *e.g.*, simply implementing a mathematical principle on a physical machine, namely a computer.

<sup>19</sup> *Alice*, 573 U.S. at 225 (explaining using a computer to obtain data, adjust account balances, and issue automated instructions involves computer functions that are well-understood, routine, conventional activities).

<sup>20</sup> See *Berkheimer Memo 4* (“A citation to one or more of the court decisions discussed in MPEP § 2106.05(d)(II) as noting the well-understood, routine, conventional nature of the additional element(s)”).

(e.g., at a high level of generality) or as insignificant extra-solution activity (See MPEP 2106.05(d)).” Ans. 5, 6 (case law citations omitted).

As further evidence of the conventional nature of the recited “administrative computer,” “student computer,” “computer network,” “computer database,” and “display” in system claim 1; and similarly for system claim 10, the Specification discloses:

Referring to Fig. 1, the system requirements of the present invention system and software 10 are shown. Most institutes of higher learning have computer databases that contain information about the students enrolled at that institution. The databases also contain information regarding the courses offered by that institution and the matriculation requirements for various majors and minors. The administration computers 12 and the administration databases 14, communicate with one or more servers 16. The servers 16 run the server-end of specialized scheduling software 18 that will be described. The software 18 run by the servers 16 is accessed by students over a computer network 19 using student computers 20, such as a laptop, a tablet computer, or smart phone, that run the user end of the same software 18. The students typically access the server 16 through a password protected student portal. In this manner, only a student can access his/her own information at any time.

Spec. 7, l. 12–8, l. 7.

Thus, because the Specification describes the additional elements in general terms, without describing the particulars, we conclude the claim limitations may be broadly but reasonably construed as reciting conventional

computer components and techniques, particularly in light of Appellants' Specification, as quoted above.<sup>21</sup>

With respect to this step of the analysis, Appellant argues:

Applicant claims that the computer system initially filters the variety of courses available for selection by eliminating courses that have been completed by the student, eliminates courses that do not serve as one of the course requirements for the major of the student, and eliminates courses that have prerequisites yet unattained by the student. Using the near parallel case of *Bascom* . . . as precedent, it can be seen that the present invention claims a specific, discrete implementation of the abstract idea of filtering content. Therefore, the [ ] claims pass step two of *Alice*'s two-part framework.

Br. 8–9 (citing *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1352 (Fed. Cir. 2016)).

In *Bascom*, the claims were directed to the inventive concept of providing customizable Internet-content filtering which, under *Step 2* of the *Alice* analysis, was found to transform the abstract idea of filtering content into a patent-eligible invention. Although the underlying idea of filtering Internet content was deemed to abstract, under *Step 2* of the *Alice* analysis, the claims carved out a specific location for the filtering system, namely a remote Internet service provider (ISP) server, and required the filtering system to give users the ability to customize filtering for their individual network accounts. *Bascom*, 827 F.3d at 1349.

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<sup>21</sup> Claim terms are to be given their broadest reasonable interpretation, as understood by those of ordinary skill in the art and taking into account whatever enlightenment may be had from the Specification. *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

In response to Appellant’s reliance upon *Bascom, supra*, there is no evidence of record to substantiate the assertion that the claims recite non-conventional and non-generic arrangement of known, conventional elements, as in *Bascom*. Moreover, we find no analogy between Appellant’s claimed system for selecting and scheduling courses at an institution and the Internet content filtering claims in *Bascom*.

The MPEP, based upon our precedential guidance, provides additional considerations with respect to analysis of the well-understood, routine, and conventional nature of the recited computer-related components.

Another consideration when determining whether a claim recites significantly more than a judicial exception is whether the additional elements amount to more than a recitation of the words “apply it” (or an equivalent) or are more than mere instructions to implement an abstract idea or other exception on a computer. As explained by the Supreme Court, in order to transform a judicial exception into a patent-eligible application, the additional element or combination of elements must do “more than simply stat[e] the [judicial exception] while adding the words ‘apply it’”. *Alice Corp. v. CLS Bank*, 573 U.S. \_\_\_, 134 S. Ct. 2347, 2357, 110 USPQ2d 1976, 1982-83 (2014) (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72, 101 USPQ2d 1961, 1965). Thus, for example, claims that amount to nothing more than an instruction to apply the abstract idea using a generic computer do not render an abstract idea eligible. *Alice Corp.*, 134 S. Ct. at 2358, 110 USPQ2d at 1983. *See also* 134 S. Ct. at 2389, 110 USPQ2d at 1984 (warning against a § 101 analysis that turns on “the draftsman’s art”) . . . .

In *Alice Corp.*, the claim recited the concept of intermediated settlement as performed by a generic computer. The Court found that the recitation of the computer in the claim amounted to mere instructions to apply the abstract idea on a generic computer. 134 S. Ct. at 2359-60, 110 USPQ2d at 1984.

The Supreme Court also discussed this concept in an earlier case, *Gottschalk v. Benson*, 409 U.S. 63, 70, 175 USPQ 673, 676 (1972), where the claim recited a process for converting binary-coded decimal (BCD) numerals into pure binary numbers. The Court found that the claimed process had no substantial practical application except in connection with a computer. *Benson*, 409 U.S. at 71-72, 175 USPQ at 676. The claim simply stated a judicial exception (e.g., law of nature or abstract idea) while effectively adding words that “apply it” in a computer. *Id.*

MPEP § 2106.05(f) (“Mere Instructions To Apply An Exception”).

With respect to the *Step 2B* analysis, we conclude, similar to *Alice*, the recitation of a “system for selecting and scheduling courses at an institution” that includes an “administrative computer,” “student computer,” “computer network,” “computer database,” and “display,” as argued by Appellants, and similarly for system claim 10, is simply not enough to transform the patent-ineligible abstract idea here into a patent-eligible invention under *Step 2B*. *See Alice*, 573 U.S. at 221 (“[C]laims, which merely require generic computer implementation, fail to transform [an] abstract idea into a patent-eligible invention.”).

We conclude the claims fail the *Step 2B* analysis because claim 1, in essence, merely recites various computer-based elements along with no more than mere instructions to implement the identified abstract idea using the computer-based elements.

Therefore, in light of the foregoing, we conclude, under the Revised Guidance, that each of Appellant’s claims 1–6 and 8–17, considered as a whole, is directed to a patent-ineligible abstract idea that is not integrated into a practical application and does not include an inventive concept.

Accordingly, we sustain the Examiner's § 101 rejection of independent claim 1, and grouped claims 2–6 and 8–17 which fall therewith. *See* Claim Grouping, *supra*.

2. § 103 Rejection R2 of Claims 1–6, 8, 9

Issue 2

Appellant argues (Br. 9–15) the Examiner's rejection of claim 1 under 35 U.S.C. § 103 as being obvious over the combination of Adams, Shaver, and Liu is in error. These contentions present us with the following issues:

(1) Did the Examiner err in finding the cited prior art combination teaches or suggests “[a] system for scheduling courses at an institution, wherein said institution offers a variety of courses in different semesters and has various course requirements for graduation,” wherein the student computer:

(a) “[is] programmed to schedule courses for an upcoming semester,”

(b) “initially filters said variety of courses available for selection by eliminating courses that have been completed by the student,”

(c) “eliminates courses that do not serve as one of said course requirements for said major of the student,” and

(d) “eliminates courses that have prerequisites yet unattained by the student, therein creating filtered course offerings,”

“wherein the student uses the student computer to select courses from said filtered course offerings,” as recited in claim 1?

(2) Did the Examiner err in combining the prior art in the manner suggested because Liu is allegedly non-analogous art?

(3) Did the Examiner err in rejecting claim 1 by not providing proper motivation to combine Adams, Shaver, and Liu?

Principles of Law

During prosecution, claims must be given their broadest reasonable interpretation when reading claim language in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Under this standard, we interpret claim terms using “the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

“[O]ne cannot show non-obviousness by attacking references individually where . . . the rejections are based on combinations of references.” *In re Keller*, 642 F.2d 413, 426 (CCPA 1981). “The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference . . . . Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art.” *Id.* at 425.

In *KSR*, the Court stated “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007).

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. . . . [A] court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

*Id.* at 417.

Further, the relevant inquiry is whether the Examiner has set forth “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (cited with approval in *KSR*, 550 U.S. at 418).

“Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.” *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011).

### Analysis

#### *Issue (1): All Limitations are Taught or Suggested*

The Examiner finds Adams teaches or suggests the contested limitations quoted above in paragraphs 76, 77, 116, 118, and 119. Final Act. 5.

Appellant contends “[t]he Examiner selectively combines the elements of three references in forming the rejection. In the cited combination, the primary prior art reference is the Adams Publication. . . . [and t]he Adams Publication makes no disclosure of filtering and categorizing the courses, as claimed the Applicant.” Appeal Br. 10. Appellant further argues:

The Adams Publication discloses that there is need to optimize a curriculum in accordance with a student’s preferences. However, it does not disclose a system that satisfies this goal in a manner consistent with Claim 1. The Adams Publication discusses the courses needed to graduate in paragraphs [0059] through [0062]. . . . The Adams Publication makes no disclosures concerning filtering the course offerings as claimed by the Applicant. Rather, the Adams Publication merely states that the “system may determine a next set of courses to be taken by the student”. This is not a teaching of filtering by eliminating courses that do not serve as course requirements for the major of the student. Likewise, this is not a teaching of filtering by eliminating courses that have prerequisites yet unattained by the student.

Appeal Br. 11.

The Examiner responds to this argument in the Answer by citing to Adams in paragraph 83<sup>22</sup> for the proposition that courses that do not serve as course requirements are eliminated by filtering, and to paragraph 114 for showing relationships between requirements, i.e., prerequisites. Ans. 7.

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<sup>22</sup> Upon review, it appears citation to paragraph 83 may be a typographical error because we find paragraph 84 of Adams actually teaches or suggests “[t]he presentation module 200 may further present to a student, a degree tree structure 180 and courses 126 used to satisfy requirements within the tree structure 180.”

The Examiner further responds by finding Adams in paragraph 85 teaches that the created schedule is optimized to the student's preferences, and that the processing module of Adams processes information on course schedules and degree programs, among other things, and optimizes that information to fit a particular student's degree tree structure and preferences. *Id.* "It is obvious that the optimizing would result in the elimination of conflicting courses in order to optimize a schedule using course schedule information and student schedule requirements as no student would schedule him/herself to take two courses at the same time, thus any schedule that produced two courses scheduled for the same time period would not be optimized." *Id.*

We agree with the Examiner's finding that Adams teaches or at least suggests the contested limitations of claim 1, and further note Appellant does not respond to the Examiner's supporting findings and legal conclusions in the Answer by filing a Reply Brief.<sup>23</sup>

*Issue (2): Liu is Analogous Art*

The Examiner relies upon Liu for teaching or suggesting a graphical progress indication on a display showing progress toward a goal, including the use of a color (green) "to indicate that a user is easily on track to reach a goal and red if the user is far behind pace to reach the goal." Final Act. 6.

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<sup>23</sup> Appellant further argues that the secondary Shaver reference "does not disclose the filtering aspects of Claim 1 that are lacking in the Adams Publication." Appeal Br. 12. We are not persuaded by this argument because we agree with the Examiner that Adams teaches or at least suggests the disputed limitations of claim 1, whereas Appellant is merely arguing the references separately. *See Keller*, 642 F.2d at 426.

“Therefore, it would have been obvious to one of ordinary skill in the art . . . to have included graphical indications with respect to goal progress, as disclosed by Liu in the system disclosed by Adams, for the motivation of providing a user-friendly visual indications of progress.” Final Act. 7.

Appellant’s argument focuses on whether the prior art references are analogous. A rejection under 35 U.S.C. § 103 cannot be based on non-analogous art. *Innovation Toys, LLC, v. MGA Entertainment, Inc.*, 637 F.3d 1314, 1321 (Fed. Cir. 2011); *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004); *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992).

Art is analogous when it is: (1) from the same field of endeavor as the claimed invention; or (2) reasonably pertinent to the particular problem faced by the inventor, if the art is not from the same field of endeavor. *Bigio*, 381 F.3d at 1325–26. However, “[t]he Supreme Court’s decision in *KSR* . . . directs us to construe the scope of analogous art broadly.” *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1238 (Fed. Cir. 2010). “The field of endeavor of a patent is not limited to the specific point of novelty, the narrowest possible conception of the field, or the particular focus within a given field.” *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1001 (Fed. Cir. 2016).

Specifically, Appellant argues Liu “discloses a fitness watch that tracks exercise goals,” and thus is non-analogous art. Appeal Br. 13. Appellant further contends:

In the present case, an exercise watch is not in the same field of endeavor as a computer system that schedules classes for a student. Likewise, an exercise watch is not reasonably pertinent to the problem faced by the inventor. Accordingly, the

Lui [sic] Publication fails both prongs of the *Bigio* test and is improperly cited.

This is a reversible error.

Regardless of whether the Lui [sic] is analogous or non-analogous, the Lui [sic] Publication does not address the deficiencies of the Adam/Shaver combination as previously applied to Claim 1.

Appeal Br. 13.

We disagree because, as found by the Examiner:

Liu seeks to solve the same problem as Appellant, i.e., to provide a visual indication of progress toward a goal. In Appellant's case, the system tracks progress in matriculating toward a selected degree. Liu teaches goal assessment that includes color-coded graphical progress. The Examiner asserts that it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to have included graphical indications with respect to goal progress, as disclosed by Liu in the system disclosed by Adams, for the motivation of providing **user-friendly visual indications of progress**.

Ans. 7–8.

While we agree with Appellant that Liu is not from the same field of endeavor as Appellant's claimed invention or Adams, we agree with the Examiner that Liu satisfies the second prong of the *Bigio* test, i.e., Liu is reasonably pertinent to the particular problem faced by the inventor, because Liu provides a visual indication of progress.

*Issue (3): The Examiner Provides Motivation to Combine the References*

Appellant alleges “the Examiner has failed to provide any articulated reasoning [for combining Adams, Shaver, and Liu].” Appeal Br. 14. “In the present application, the Examiner understands that none of the cited

references disclosure the use of a computer system that filters and compiles schedules courses in the manner of the present invention. However, the Examiner has not articulated any reasoning of why a person would use the teachings of the prior art to arrive at the matter being claimed. Nor is the reason apparent.” *Id.*

We disagree with Appellant’s contention that “the Examiner has not articulated *any* reasoning” (*id.* (emphasis added)), and further find the Examiner’s stated motivation to combine is proper, i.e., “it would have been obvious to one of ordinary skill in the art . . . to have included displaying the number of credits needed per semester to meet graduation goals as disclosed by Shaver, in the system disclosed by Adams, for the motivation of providing a method of designing a curriculum for obtaining a degree that is optimized in accordance with a student's preferences, goals, limitations and needs.” Final Act. 6 (citing Adams ¶ 16). The Examiner also finds “it would have been obvious to one of ordinary skill in the art . . . to have included graphical indications with respect to goal progress, as disclosed by Liu in the system disclosed by Adams, for the motivation of providing a user-friendly visual indications of progress.” Final Act. 7.

We find these motivational statements meet the requirements of *Kahn* and *KSR*. *See Kahn*, 441 F.3d 977 at 988; *KSR*, 550 U.S. at 418.

Based upon the findings above, on this record, we are not persuaded of error in the Examiner’s reliance on the cited prior art combination to teach or suggest the disputed limitations of claim 1, nor do we find error in the Examiner’s resulting legal conclusion of obviousness. Therefore, we sustain

the Examiner's obviousness rejection of independent claim 1, and grouped claims 2–6 and 8–9 which fall therewith. *See* Claim Grouping, *supra*.

3. § 103 Rejection R3 of Claims 10, 13–15

Issue 3

Appellant argues (Br. 15–17) the Examiner's rejection of claim 10 under 35 U.S.C. § 103(a) as being obvious over Adams is in error. These contentions present us with the following issue:

Did the Examiner err in finding that Adams teaches or suggests “[a] system for scheduling courses at an institution that offers a variety of courses in different semesters and has various course requirements for graduation,” wherein, *inter alia*, the student computer carries out the dispositive limitation of “assign[ing] priorities to said topics of study; wherein said student computer prompts the student to select courses from said filtered course offerings using said priorities,” as recited in claim 10?<sup>24</sup>

Analysis

Appellant contends “[t]he Adams Publication also does not disclose or suggest the claimed [dispositive limitation identified above and] . . . fails to disclose the matter set forth in Claim 10. It is, therefore, respectfully requested that the Board reverse the Examiner and withdraw the 35 USC [§] 103 rejections as applied to Claim 10 and its dependent claims.” Appeal Br. 17.

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<sup>24</sup> Appellant makes further arguments regarding the dispositive limitation of claim 1, also recited in claim 10, not being taught or suggested by Adams. Appeal Br. 15–16. For the reasons discussed above in *Issue 2* concerning claim 1, we are not persuaded by Appellant's argument.

The Examiner responds by finding “Adams teaches categorizing courses into topics of study (Fig. 5; [0024] and [0065]: degree program requirements, university requirements, etc.) and prioritizing the categories ([0084]: the system presents courses to the student to satisfy degree requirements (thus prioritizing those categories of courses) and [0117]: the scheduler optimizes based on student preferences, such as location, thus courses in a given preferred location category will be prioritized over courses in a non-preferred category.)” Ans. 8–9. Appellant does not respond to the Examiner’s findings and conclusion regarding claim 10 by filing a Reply Brief.

Moreover, we determine that mere attorney arguments and conclusory statements that are unsupported by factual evidence are entitled to little probative value. *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997); *see also In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984); and *Ex parte Belinne*, No. 2009-004693, slip op. at 7-8 (BPAI Aug. 10, 2009) (informative), *available at* <https://www.uspto.gov/sites/default/files/ip/boards/bpai/decisions/inform/fd09004693.pdf>. *See In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (“[W]e hold that the Board reasonably interpreted Rule 41.37 to require more substantive arguments in an appeal brief than a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art.”); *cf. In re Baxter Travenol Labs.*, 952 F.2d 388, 391 (Fed. Cir. 1991) (“It is not the function of this court to examine the claims in greater detail than argued by an appellant, looking for [patentable] distinctions over the prior art.”). Arguments not made are therefore waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Based upon the findings above, on this record, we are not persuaded of error in the Examiner's reliance on the cited prior art to teach or suggest the dispositive limitation of claim 10, nor do we find error in the Examiner's resulting legal conclusion of obviousness. Therefore, we sustain the Examiner's obviousness rejection of independent claim 10, and grouped claims 13–15 which fall therewith. *See Claim Grouping, supra.*

4. § 103 Rejection R4 of Claims 11, 12

Issue 4

Appellant argues (Br. 17–18) the Examiner's rejection of claim 11 under 35 U.S.C. § 103(a) as being obvious over Adams, Shaver, and the Examiner's taking of Official Notice is in error. These contentions present us with the following issue:

Did the Examiner err in finding the cited prior art combination teaches or suggests the system of claim 10, “wherein said student computer creates a visual display that indicates how many course credits are required in each of said topics of study to obtain said course requirements for graduation for said major of the student,” as recited in claim 11, because the Examiner allegedly erred in taking Official Notice that visual displays are old and well-known?

Analysis

Appellant argues “[t]he Adams publication makes no disclosure of a display. *The Shafer publication may suggest use of a display.* However, it makes no disclosure whatsoever concerning displaying credits required for graduation per topic of study. . . . [and therefore, t]he Examiner's statement

that the material lacking in the Adams/Shafter confirmation is obvious in view of Official Notice is wrongful.” Appeal Br. 17 (emphasis added).

In support of the Examiner’s position, we note that Official notice unsupported by documentary evidence should only be taken by the Examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. As noted by the court in *In re Ahlert*, 424 F.2d 1088, 1091 (CCPA 1970), the notice of facts beyond the record which may be taken by the Examiner must be “capable of such instant and unquestionable demonstration as to defy dispute” (citing *In re Knapp Monarch Co.*, 296 F.2d 230 (CCPA 1961)). In *Ahlert*, the court held that the Board properly took judicial notice that “it is old to adjust intensity of a flame in accordance with the heat requirement.” See also *In re Fox*, 471 F.2d 1405, 1407 (CCPA 1973) (the court took “judicial notice of the fact that tape recorders commonly erase tape automatically when new ‘audio information’ is recorded on a tape which already has a recording on it”).

In this Appeal, we find that the use of visual displays is old and well-known, and is capable of “instant and unquestionable demonstration as being well-known.” Furthermore, the contested limitation in dependent claim 11 is an old and well known expedient in the art even without the support of documentary evidence because the facts so noticed are of notorious character and serve only to “fill in the gaps” in the evidentiary showing made by the Examiner to support a particular ground of rejection. *In re Zurko*, 258 F.3d 1379, 1385, (Fed. Cir. 2001); *Ahlert*, 424 F.2d at 1092.

In reviewing the record, Appellant has not properly traversed the Examiner's finding by stating that the purported well-known fact is not considered to be common knowledge or well-known in the art. *See* MPEP § 2144.03(C) (“To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner’s action, *which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art. See* 37 CFR 1.111(b).” (emphasis added)). An adequate rebuttal of the Examiner’s taking of Official Notice must contain sufficient information or argument to create on its face a reasonable doubt regarding the circumstances justifying the Examiner’s notice of what is well known to one of ordinary skill in the art. *In re Boon*, 439 F.2d 724, 728 (CCPA 1971). In this case, Appellant has failed to meet this threshold requirement to traverse the taking of Official Notice.

Furthermore, “where the claim as a whole is directed conveying a message or meaning to a human reader independent of the intended computer system, and/or the computer-readable medium merely serves as a support for information or data, no functional relationship exists.”<sup>25</sup> *See* Manual for Patent Examining Procedure (MPEP) § 2111.05 III [R-08-2017]

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<sup>25</sup> Although not relied upon in our Decision, in the event of further prosecution, we invite the Examiner’s attention as to whether the recited type of information displayed, *e.g.*, credits required for graduation per topic of study, lends patentability, or whether such displayed information is merely non-functional descriptive material. Here, the information is intended to be presented to an end user/human viewer, but the informational content is not positively recited as actually being used to: (1) change or affect any machine or computer function, or (2) alter how the information will be obtained or displayed.

Accordingly, because Appellant did not adequately traverse the Examiner's taking of Official Notice, we are not persuaded of error in the Examiner's reliance on the cited prior art combination and the taking of Official Notice to teach or suggest the disputed limitation of claim 11, nor do we find error in the Examiner's resulting legal conclusion of obviousness. Therefore, we sustain the Examiner's obviousness rejection of dependent claim 11, and grouped claim 12, which falls therewith. *See Claim Grouping, supra.*

5. § 103 Rejections R5 and R6 of Claims 16, 17

In view of the lack of any substantive or separate arguments directed to obviousness Rejections R5 and R6 of claims 16 and 17 under § 103 (*see* Br. 18), we sustain the Examiner's rejection of these claims. Arguments not made are waived.<sup>26</sup>

## CONCLUSIONS

(1) Under our Revised Guidance, governed by relevant case law, claims 1–6 and 8–17 are patent-ineligible under 35 U.S.C. § 101, and we sustain the rejection.

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<sup>26</sup> Appellant merely argues, “the Shafer Publication does not address the lack of the Adams Publication to disclose the filtered course offerings being claimed. As such, the Shafer Publication does not address the deficiencies of the Adams Publication as applied to Claim 10. Claims 16 and Claim 17 are therefore believed to be allowable since it depends from and further defines and [sic] allowable base claim.” Appeal Br. 18.

(2) The Examiner did not err with respect to obviousness Rejections R2 through R6 of claims 1–6 and 8–17 under 35 U.S.C. § 103 over the cited prior art combinations of record, and we sustain the rejections.

DECISION SUMMARY

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis / References</b>	<b>Affirmed</b>	<b>Reversed</b>
1–6, 8–17	101	Subject Matter Eligibility	1–6, 8–17	
1–6, 8, 9	103	Obviousness Adams, Shaver, Liu	1–6, 8, 9	
10, 13–15	103	Obviousness Adams	10, 13–15	
11, 12	103	Obviousness Adams, Shaver, Official Notice	11, 12	
16	103	Obviousness Adams, Shaver	16	
17	103	Obviousness Adams, Shaver, Official Notice	17	
<b>Overall Outcome</b>			1–6, 8–17	

Appeal 2020-000138  
Application 14/930,643

FINALITY AND RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv). *See* 37 C.F.R. § 41.50(f).

AFFIRMED