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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/814,397	07/30/2015	Aman Grover	3080.E15US1	6392

45839	7590	10/08/2020	

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EXAMINER
OFORI-AWUAH, MAAME

ART UNIT	PAPER NUMBER
3629	

NOTIFICATION DATE	DELIVERY MODE
10/08/2020	ELECTRONIC

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PTOL-90A (Rev. 04/07)

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte AMAN GROVER, SIYU YOU,
KRISHNARAM KENTHAPADI, PARUL JAIN,
FEDOR VLADIMIROVICH BORISYUK,
CHRISTOPHER MATTHER DEGIERE,
and SONGTAO GUO

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Appeal 2020-003327
Application 14/814,397
Technology Center 3600

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Before JOSEPH A. FISCHETTI, BIBHU R. MOHANTY, and
JAMES P. CALVE, *Administrative Patent Judges*.

CALVE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the decision
of the Examiner to reject claims 1–20. We have jurisdiction under 35 U.S.C.
§ 6(b).

We AFFIRM.

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[1] "Appellant" refers to "applicant" as defined in 37 C.F.R. § 1.42. Appellant
identifies Microsoft Technology Licensing LLC as the real party in interest.
Appeal Br. 2.

CLAIMED SUBJECT MATTER

Claims 1, 8, and 16 are independent. Claim 1 is reproduced below.

1.   A computer-implemented method comprising:
using a machine learning algorithm to learn weights, wherein the learning involves optimizing weights assigned to features of member profiles, based on sample member profiles of successful candidates, wherein a successful candidate is a member who previously applied for a particular job and obtained the particular job;
receiving, from a jobs database, metadata pertaining to job listing data corresponding to a job opening, the metadata including one or more requirements for the job opening;
obtaining, from a member database distinct from the jobs database, a member profile for a first member of a social networking service;
obtaining, from the member database, a plurality of member profiles for members of the social networking service other than the first member, the plurality of member profiles corresponding to members who have applied for and obtained job offers for jobs similar to the job opening;
determining, for each of the plurality of member profiles, a date on which the corresponding member applied for the job similar to the job opening;
obtaining, for each of the plurality of member profiles, a version of the corresponding member profile as it was on the date on which the corresponding member applied for the job similar to the job opening, each of the versions of the corresponding member profiles including a vector of features of the corresponding member;
applying, using a computer processor, one or more of the weights to the vectors for the plurality of member profiles to obtain a vector of features representing a perfect candidate for the job opening;
obtaining a vector of features of the first member from the member profile for the first member;
calculating a distance for the first member with respect to the perfect candidate for the job opening by comparing the

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vector of features representing the perfect candidate and the
vector of features of the first member; and

      causing a graphical user interface to display a
recommendation of the job opening to the first member based
on the calculated distance.

REJECTION

Claims 1–20 are rejected under 35 U.S.C. § 101 as being directed to a
judicial exception without significantly more.

ANALYSIS

Patent Eligibility of Claims 1–20

Appellant argues the claims as a group. *See* Appeal Br. 7–12. We
select claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Regarding claim 1, the Examiner determines each of the limitations of
claim 1 can be performed in the mind as mental processes except for recited
generic components and therefore it recites an abstract idea. Final Act. 3–4.
The Examiner also determines that claim 1 recites additional elements as a
database, computer processor, social networking service, and graphical user
interface at high levels of generality for performing generic functions that do
not integrate claim 1 into a practical application. *Id.* at 4–5. The Examiner
finds that the processor performs generic functions of storing, computing,
and presenting, and the graphical user interface displays data as insignificant
extra solution activity. *Id.* at 4–5. The Examiner determines that the recited
databases and social networking service perform insignificant extra solution
activity of data gathering. *Id.* at 5. Considering these elements individually
or as an ordered combination, the Examiner determines that they apply the
abstract concept to a technical environment in a very general sense that does
not add significantly more to the abstract idea. *Id.* at 5–6.

Principles of Law

Section 101 of the Patent Act states:

> 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.

35 U.S.C. § 101. This provision contains an implicit exception: "Laws of nature, natural phenomena, and abstract ideas are not patentable." *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014).

To distinguish patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications, we first determine whether the claims are directed to a patent-ineligible concept. *Id.* at 217. If they are, we consider the elements of each claim, individually and "as an ordered combination," to determine if additional elements "'transform the nature of the claim' into a patent-eligible application" as an "inventive concept" sufficient to ensure the claims in practice amount to significantly more than a patent on the ineligible concept itself. *See id.* at 217–18.

The USPTO has issued guidance about this framework. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) ("Revised Guidance"). Under the Revised Guidance, to determine whether a claim is "directed to" an abstract idea, we evaluate whether the claim recites: (1) any judicial exceptions, including certain groupings of abstract ideas listed in the Revised Guidance (i.e., mathematical concepts, certain methods of organizing human activities such as a fundamental economic practice, or mental processes); and (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP §§ 2106.05(a)–(c), (e)–(h) (9th ed. Rev. 10.2019 June 2020) ("MPEP")). *Id.* at 52–55.

Only if a claim (1) recites a judicial exception and also (2) does not integrate that exception into a practical application, do we then consider whether the claim (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. *Id.* at 56.

Step 1: Is Claim 1 Within a Statutory Category?

Claim 1 recites a "method" which is a statutory category of 35 U.S.C. § 101, namely, a process. *See* Final Act. 4. Thus, we consider whether claim 1 as a whole recites a judicial exception.

Step 2A, Prong One: Does Claim 1 Recite a Judicial Exception?

We determine claim 1 recites certain methods of organizing human activity by managing relationships or interactions between people or social activities by following rules and mental processes—concepts performed in the human mind. Revised Guidance, 84 Fed. Reg. at 52; *see* October 2019 Update: Subject Matter Eligibility.

Claim 1 recites a method of scoring how closely profiles on a social networking site match job listings to determine the likelihood of a member obtaining a job. Spec. ¶¶ 1 (p. 1), 17 (p. 4).[2] A machine learning algorithm assigns weights to profile features of members who obtained a similar job to create a vector of features for a perfect candidate, and that vector is used to score how closely member profiles match a perfect candidate. *Id.* ¶¶ 31–34.

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[2] Refers to the Specification that was filed July 30, 2015. The Specification lists duplicate paragraphs 1–19 at pages 1–4 and 5–11. Therefore, citations to those paragraphs also will cite the page on which the paragraph appears.

The first step of "using a machine learning algorithm to learn weights, wherein the learning involves optimizing weights assigned to features to member profiles, based on sample member profiles of successful candidates, wherein a successful candidate is a member who previously applied for a particular job and obtained the particular job" recites a mental process as the Examiner determines. Appeal Br. 13 (Claims App.); Final Act. 3–4.

This step uses a generic "machine learning algorithm" to replicate the mental steps that a recruiter or other person would perform mentally to filter member profiles of candidates who successfully obtained a job to determine the features that were most relevant to obtaining the job. The Specification describes how corporate recruiters can search and filter member profiles on social networks to identify potential candidates who match a particular job posting and match member profiles to the job postings. Spec. ¶¶ 2 (p. 1), 15 (p. 3). Members search/filter job postings that match their qualifications. *Id.* ¶ 15 (p. 3). Recruiters similarly can identify features of candidates who obtained a job and compare those features to member profiles to determine how closely a member's profile matches features of successful candidates as mental steps. *See id.*; Revised Guidance, 84 Fed. Reg. at 52 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012)).

In addition, member profile data organizes a member's personal and professional activities, relationships, interactions, and social activities. The Specification indicates member profiles include personal information such as name, age, gender, interests, contact information, home town, address, spouse and family members, educational background (schools, majors), and employment history with skills, professional organizations, and job titles. *Id.* ¶ 9 (p. 7). As such, member profiles also organize human activities.

Essentially, the profiles of members who obtained jobs are market survey data to be analyzed and filtered to learn which features led to a job. Using a generic machine learning algorithm to analyze such market survey data to identify which features are optimal for a job (*see* Appeal Br. 7–8) is an abstract idea. *See OIP Techs, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1361–62 (Fed. Cir. 2015) (claims to analyzing price surveys to identify how customers responded to offers and estimate an optimal price for a product is an abstract idea); Revised Guidance, 84 Fed. Reg. at 52 (citing *OIP*).

The claimed "machine learning algorithm" in described generically. "[A] machine learning system is utilized that computes a score that provides a quantitative measurement of the likelihood that a particular member will obtain a particular job if desired." Spec. ¶ 17 (p. 4). "The machine learning system creates virtual candidates/members that are hypothetical 'perfect fits' for the jobs in the ecosystem." *Id.* ¶ 18 (p. 4).

> As described briefly above, machine learning techniques may be applied to different areas of the system/method described above to improve reliability. For example, . . . the perfect candidate generator 316 may receive feedback in the form of indications of whether or not particular candidates actually received offers, and then may adjust the one or more policies it uses to determine the perfect candidate accordingly. For example, the perfect candidate generator 316 may first indicate that particular skills A, B, C, and D are key qualities of a perfect candidate, but then later receive feedback that a certain number of candidates who applied who had these key qualities did not receive offers, but candidates, who had an added skill of E received a high percentage of offers. The perfect candidate generator 316 may then adjust the policies, not just for this particular job but potentially for other jobs as well based on this feedback as to its "performance".

Id. ¶ 43.

As recited in claim 1, a machine learning algorithm replicates mental processes used to identify features of candidates who obtained to a job. No details of how policies or rules are used to learn weights is claimed. Claims that merely replicate the mental steps performed by a person, when recited at such a high level of generality as in claim 1, recite a mental process. *See In re Meyer*, 688 F.2d 789, 795 (Fed. Cir. 1982) (holding that claims to a computerized method of performing a neurological examination by using an algorithm to represent mental processes that a neurologist should follow to replace the thinking processes of a neurologist with a computer were not patent eligible); *SmartGene, Inc. v. Advanced Biological Labs., SA*, 555 F. App'x 950, 954–55 (Fed. Cir. 2014) (holding a claimed computer device replicated thought processes of a medical doctor where it contained, like a doctor's mind, "expert rules for evaluating and selecting" from a "plurality of different therapeutic treatment regimens" and advisory information useful for the treatment of a patient with different constituents of said different therapeutic regimens.").

Appellant argues the claims require a machine learning algorithm to learn weights and "use of a machine learning algorithm inherently requires the use of a machine, and cannot be performed in the mind." Appeal Br. 8. No details of this process are claimed, however. As claimed, the machine learning algorithm merely replicates mental processes of recruiters similar to claims determined to be an abstract idea in *Meyer* and *SmartGene*. *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) ("In a similar vein, we have treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.").

The remaining steps except for displaying a recommendation of a job opening[3] also organize human activities in member profiles and analyze the data by mental process steps. The steps include the following:

> receiving, from a jobs database, metadata pertaining to job listing data corresponding to a job opening, the metadata including one or more requirements for the job opening,
> obtaining, from a member database distinct from the jobs database, a member profile for a first member of a social networking service,
> obtaining, from the member database, a plurality of member profiles for members of the social networking service other than the first member, . . . who have applied for and obtained job offers for jobs similar to the job opening,
> determining, for each of the plurality of member profiles, a date on which the corresponding member applied for the job similar to the job opening,
> obtaining, for each of the plurality of member profiles, a version of the corresponding member profile as it was on the date on which the corresponding member applied for the job similar to the job opening . . . including a vector of features of the corresponding member,
> applying, . . . one or more of the weights to the vectors for the plurality of member profiles to obtain a vector of features representing a perfect candidate for the job opening,
> obtaining a vector of features of the first member from the member profile for the first member, [and]
> calculating a distance for the first member with respect to the perfect candidate for the job opening by comparing the vector of features.

Appeal Br. 17 (Claims App.).

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[3] Displaying data is nevertheless extra solution activity and patent ineligible. *See Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010) ("*Flook* stands for the proposition that the prohibition against patenting abstract ideas 'cannot be circumvented by attempting to limit the use of the formula to a particular technological environment' or adding 'insignificant postsolution activity.'") (quoting *Diamond v. Diehr*, 450 U.S. 175, 191–92 (1981)).

As claimed, such steps of obtaining data such as metadata, member profiles, and dates recite mental processes and methods of organizing human activity. *Elec. Power*, 830 F.3d at 1355 ("But merely selecting information, by content or source, for collection, analysis, and display does nothing significant to differentiate a process from ordinary mental processes, whose implicit exclusion from § 101 undergirds the information-based category of abstract ideas."); *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146 (Fed. Cir. 2016) (same); *see also Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (holding that humans have performed steps of collecting data, recognizing certain data in the set, and storing recognized data, *e.g.*, by banks reviewing checks); *CyberSource Corp. v. Retail Decisions, Inc.,* 654 F.3d 1366, 1373 (Fed. Cir. 2011) ("[C]omputational methods which can be performed entirely in the human mind are the types of methods that embody the 'basic tools of scientific and technological work' that are free to all men and reserved exclusively to none")).

In *CyberSource*, the court held a person could read records of Internet credit card transactions from a preexisting database, construct a map or list of transactions made from a particular Internet address, and compare the list to actual transactions to identify fraudulent transactions that used the same Internet address to conduct multiple transactions with different credit cards of different users and different billing addresses. *CyberSource*, 654 F.3d at 1372–72. Here, claim 1 recites steps a person can perform by writing down "metadata" of job listings and features of member profiles of successful job candidates and comparing a "distance" of prospective job seekers based on the similarity of features in their profiles to features of a perfect candidate.

The Specification's description of these features makes clear that they recite the abstract idea identified above. For example, a "vector" of features of a member profile merely refers to skills, endorsements or attributes of the corresponding member. Spec. ¶ 31. Metadata may include requirements for a job opening. *Id.* ¶ 45. Job data requirements may be extracted by filters or thresholds. *Id.* ¶ 18 (p. 10). Recognizing and extracting data from records is an abstract idea when recited at such a high level of generality. *See Content Extraction*, 776 F.3d at 1347. Filtering data is an abstract idea when recited at such a high level of generality. *See BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1348 (Fed. Cir. 2016) ("We agree with the district court that filtering content is an abstract idea because it is a longstanding, well-known method of organizing human behavior, similar to concepts previously found to be abstract."); MPEP § 2106.04(a)(2)II.C.

Appellant argues the claims are similar to Example 39 of the 2019 Revised Guidance because they recite the training of a machine learning algorithm and therefore do not recite a mathematical relationship or a mental process. Appeal Br. 7–8; Reply Br. 4. Appellant argues that the claims recite "using a machine learning algorithm to learn weights, wherein the learning involves optimizing weights assigned to features of member profiles, based on sample member profiles of successful candidates, wherein a successful candidate is a member who previously applied for a particular job and obtained the particular job" and these features are not within one of the categories of abstract idea in the Revised Guidance. Appeal Br. 8.

As discussed above, using a machine learning algorithm to process data to learn weights, when recited at a high level of generality as in claim 1 with the other limitations, recites the abstract idea identified above.

Furthermore, the claim of Example 39 is distinguishable from claim 1 because the steps of "applying one or more transformations to each digital facial image including mirroring, rotating, smoothing, or contrast reduction to create a modified set of digital facial images," creating training sets with the collected set of digital images, and training the neural network in a first and a second stage did not recite a mental process because the steps could not be performed in the human mind. *See* 2019 Subject Matter Eligibility Examples: Abstract Ideas, Example 39, at 8–9.

Here, as discussed above, claim 1 recites steps that can be performed as mental process steps in the human mind or with pen and paper. The steps also organize the human activity identified above as well. Claim 1 does not recite steps of training a neural network. The machine learning algorithm is recited as being used to "learn weights." Appeal Br. 13 (Claims App.).

Essentially, claim 1 recites a method of creating an index of features in member profiles of members who obtained a job and using the index to weight the features (vectors) in an unspecified way. Weighting can result from features that appear more often in profiles of successful job applicants. Spec. ¶ 43. Member profiles are collected, parsed, and stored in a *search index* to facilitate identification and retrieval of information in response to search queries. *Id.* ¶ 15 (p. 9). Unspecified policies (rules) are applied to create a perfect candidate index used to calculate a distance (score) for a member profile's suitability for a particular job. *Id.* ¶¶ 33, 34, 51.

In an analogous situation, using an index of tags and metafiles to locate desired information in a database recited longstanding conduct that existed well before the advent of computer and the Internet. *See Intellectual Ventures I LLC v. Erie Indemnity Co.*, 850 F.3d 1315, 1327 (Fed. Cir. 2017).

In *Intellectual Ventures*, the claims recited a method of organizing and accessing records by creating an index-searchable database. *Id.* The court held that library indexing systems and other classification systems are used by classifiers to organize and cross-reference resources by certain tags such as title, author, and subject. *Id.* Here, claim 1 recites a machine learning algorithm that classifies (weights) features in member profiles of successful candidates. Classifiers can perform this step by collecting member profiles, recording features of candidates who obtained jobs, and weighting features that appear more frequently in profiles of successful candidates. Spec. ¶ 43.

Just as indexes identify and organize features that appear most often in a work, the claimed "perfect candidate" indexes features of successful job candidates. A member profile is compared to a perfect candidate to score how closely a member profile matches it. *See id.* at 1328 ("The focus of the claims, therefore, remains at a high level on searching a database using an index. The inclusion of XML tags as the chosen index building block, with little more, does not change that conclusion."); *see also BSG Tech LLC v. BuySeasons*, 899 F.3d 1281, 1286 (Fed. Cir. 2018) (holding the use of historical usage information to input data into a database was a fundamental, long-prevalent practice and well-established method of organizing activity); *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1366–67 (Fed. Cir. 2018) (holding steps of parsing, comparing, storing, and editing data were not patent eligible for the reasons set forth in *Content Extraction*, 776 F.3d at 1347 and *In re TLI Commc'ns LLC Patent Litig.* 823 F.3d 607, 613 (Fed. Cir. 2016)).

The claimed "distance" is a concept without parameters. It indicates how closely a profile matches a perfect candidate in some unclaimed way. It is adjusted dynamically using policies that are not claimed. Spec. ¶¶ 42–50.

To predict (score) a prospective member profile's distance to a job, the claimed method data mines member profiles of candidates who obtained the same or similar jobs in the past to create a perfect candidate index that is used to assess the likelihood of other member profiles obtaining a job listing. A similar claim to using surveys and crowdsourcing to evaluate a likelihood of success in a similar marketing context was held to recite an abstract idea of organizing human activity in *Jobin*. *See In re Jobin*, 811 F. App'x 633, 637 (Fed. Cir. 2020). As the court explained in that case:

> Despite its expansive language and its recitation of servers and databases, claim 221 of Jobin's application is, at bottom, directed to the collection, organization, grouping, and storage of data using techniques such as conducting a survey or crowdsourcing. As the Board correctly concluded, this claim is directed to a method of organizing human activity—a hallmark of claims directed to abstract ideas.

Id.

Here, the claimed steps of machine learning weights by an algorithm and parsing member profiles of successful candidates to identify vectors and features to be weighted are recited at such a high level of generality that they recite the abstract idea identified above. Example 39 of the 2019 PEG is distinguishable because it transformed digital images and created a training set with the digital images, trained a neural network in a first stage using the first training set, and created a second training set of images using the first set of images that were incorrectly detected as facial images (false positive) and then trained the neural network in a second stage. 2019 PEG, at 8–9.

Accordingly, we determine that claim 1 recites certain methods of organizing human activity and mental processes identified above and thus recites a judicial exception under the Revised Guidance.

Step 2A, Prong Two: Integration into a Practical Application

We next consider whether claim 1 recites any additional elements that integrate the abstract idea into a practical application. Revised Guidance, 84 Fed. Reg. at 54 (Revised Step 2A, Prong Two). We determine claim 1 lacks additional elements that improve a computer or other technology. The additional elements do not implement the abstract idea in conjunction with a particular machine or manufacture that is integral to the claim. They do not transform or reduce a particular article to a different state or thing. They do not apply the abstract idea in a meaningful way beyond merely linking it to a particular technological environment. *See* Revised Guidance, 84 Fed. Reg. at 55 and MPEP sections cited therein.

Appellant contends that the Examiner has analyzed only the additional elements of the database, social networking service, graphical user interface, and computer processor while ignoring other elements of the claim and thus has not considered the claim as a whole under Prong Two as required by the October 2019 Update: Subject Matter Eligibility. Reply Br. 7. Appellant also asserts that the Examiner has ignored arguments that the present claims do not monopolize the judicial exception but recite a particular solution to a particular technical problem described in the Specification using the specific computer operations in the claims. *Id.* at 8. Appellant argues that the claims describe "using a machine learning algorithm to learn weights, wherein the learning involves optimizing weights based on sample member profiles of successful candidates" and thus are limited to embodiments where machine algorithms are used to learn such weights rather than fixed algorithms that are programmed into a computer by a human as a way to optimize weights based on member profiles of successful candidates. *Id.*

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Notably, Appellant does not challenge the Examiner's findings that the additional elements are recited as generic components used to perform generic functions as tools that implement the abstract idea. Final Act. 4; Ans. 12; Appeal Br. 8–11; Reply Br. 6–8. We agree that claim 1 recites a database, social networking service, computer processor, and graphical user interface as generic elements that perform generic functions without any improvement to computers or other technology claimed. The Examiner has considered the additional elements in the context of the claim as a whole.

The jobs and member databases store data to be retrieved. Metadata relating to job listings for a job opening is received from the jobs database. Member profiles are obtained from the member database. *See* Appeal Br. 13 (Claims App.). The Specification describes the databases generically. "A jobs database 302 contains data regarding a plurality of different available jobs. The data may be defined via one or more job postings collected by a job posting service." Spec. ¶ 16 (p. 9). "[A] data layer may include several databases, such as a database 218 for storing data, including both member profile data as well as profile data for various organizations (e.g., companies, schools, etc.)." *Id.* ¶ 9 (p. 7). "[A] member mapper 310 may select a corresponding member profile in the member database 312 based on a matching algorithm that uses various fields (called 'features') of metadata found in the data from the internal database 308." *Id.* ¶ 20.

As the Federal Circuit held in *BSG*, "the recited database structure similarly provides a generic environment in which the claimed method is performed." *BSG*, 899 F.3d at 1286–87 ("[T]he recitation of a database structure slightly more detailed than a generic database does not save the asserted claims at step one.").

The social networking service is recited generically. Members belong to a social networking service. Appeal Br. 13 (Claims App.). Persons and organizations can register to join a social networking service. Spec. ¶ 9 (p. 7). Other features are described for the social networking service/system in the Specification but none of the features are claimed. *Id.* ¶¶ 6–15 (pp. 6–9). Thus, they cannot integrate the claim into a practical application.

The computer processor is recited generically as applying weights to vectors for the plurality of member profiles. Appeal Br. 13 (Claims App.). The Specification indicates processors can be configured by software or as a hardware-implemented module. Spec. ¶¶ 67–71. A hardware-implemented module can use a special-purpose processor, general-purpose processor, or a programmable processor. *Id.* ¶ 68. However, again, claim 1 does not recite any feature of the claimed processor beyond the generic function of applying weights to vectors of member profiles. It is well-settled in this regard that "mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention." *Alice*, 573 U.S. at 223; *see Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Can. (U.S.)*, 687 F.3d 1266, 1277 (Fed. Cir. 2012) (explaining a "computer" is "an automatic electronic device for performing mathematical or logical operations" and "[a] digital computer . . . operates on data expressed in digits, solving a problem by doing arithmetic as a person would do it by head and hand" such that the "meanings conveniently illustrate the interchangeability of certain mental processes and basic digital computation and help explain why the use of a computer in an otherwise patent-ineligible process for no more than its most basic function—making calculations or computations—fails to circumvent the prohibition against patenting abstract ideas and mental processes.").

The graphical user interface is a generic component used to perform a generic function of "display a recommendation of the job opening to the first member based on the calculated distance." Appeal Br. 14 (Claims App.). The Specification describes this component as a generic element coupled to a processor of a mobile device or part of generic computer system 1000 as a video display, liquid crystal display or cathode ray tube. Spec. ¶¶ 66, 79.

The graphical user interface thus performs insignificant extra solution activity. It outputs data resulting from the data collection and analysis steps. Final Act. 5; *see SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018) ("And 'merely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis.' . . . The claims here are directed at abstract ideas under those principles.") (citations omitted); *see also* MPEP § 2106.05(g).

Because claim 1 recites the additional elements generically to perform generic functions and the Specification confirms that the additional elements are generic components that do not improve the operation of computers or other technology, the additional elements do not tie the abstract idea to a particular machine that is integral to the claim. Instead, they implement the abstract idea as "tools" without any innovations that integrate the abstract idea into a practical application. *See* Ans. 12; Revised Guidance, 84 Fed. Reg. at 55; MPEP §§ 2106.05(a)I., 2105.05(b)II; *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1354 (Fed. Cir. 2014) (noting that the method claims in *Alice* merely invoked "some unspecified, generic computer" to obtain data, adjust account balances, and issue automated instructions without reciting any improvement to the functioning of the computer or other technology).

Appellant also argues that the application solves technical problems in existing social networking services that connect member profiles without the ability to determine with accuracy if a member will obtain a job. Appeal Br. 9 (citing Spec. ¶¶ 15, 16). As a result, Appellant asserts that members over apply for job postings. Spec. ¶ 15 (p. 3). This over subscription wastes time and resources when members may obtain unnecessary training and education under the mistaken assumption it will make them competitive for a job when such training and education actually will not. *Id.* ¶ 16 (pp. 3–4).

Even if these passages describe a technical problem, *e.g.*, of obtaining greater accuracy in filtering or matching search results of member profiles to job postings on social networks, claim 1 does not recite a solution to that problem. *See ChargePoint*, 920 F.3d at 769–70 ("Even if ChargePoint's specification had provided, for example, a technical explanation of how to enable communication over a network for device interaction (which, as discussed above, it did not), the claim language here would not require those details. Instead, the broad claim language would cover any mechanism for implementing network communication on a charging station."); *Ericsson Inc. v. TCL Commc'ns Tech. Holdings Ltd.*, 955 F.3d 1317, 1325 (Fed. Cir. 2020) ("[T]he specification may be helpful in illuminating what a claim is directed to [but it] must always yield to the claim language when identifying the 'true focus of a claim.'") (citation omitted); *Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017) (rejecting argument the claim solved technical problems of excessive loads, network congestion, variations in delivery times, scalability, and imprecise record keeping where the claim used only generic functional language to achieve these purported solutions).

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The machine learning algorithm is claimed generically. It learns and optimizes weights. Appeal Br. 13 (Claims App.). These steps are recited at such a high level of generality without any innovative features that they are part of the abstract idea identified under Prong One. Even if an innovation is described in the Specification, claim 1 does not recite any innovation. Thus, "the complexity of the implementing software or the level of detail in the specification does not transform a claim reciting only an abstract concept into a patent-eligible system or method." *Accenture Global Servs. GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013).

Reciting concepts at this level of generality recites a judicial exception rather than an integration into a practical application. *See OIP*, 788 F.3d at 1362–63 (holding that claims to a method of offer-based price optimization recited an abstract idea and limiting the claims to price optimization without preempting all price optimization did not make the claims any less abstract).

In *Gopalan*, the court determined that optimization of parameters to yield optimal true positives and false positives recited an abstract concept.

> The claims only generically recite "a metric," "an optimization technique," an "optimization parameter," "a value of a number of independent measures," and "a value for a confidence measure." None of these variables are defined, and the claims do not concretely limit these variables such that the claims do not merely claim the result of obtaining a "substantially optimal combination of true positives and false positives" in the data set.
> . . .
> Thus, the claims do not "embody a concrete solution to a problem" because they lack "the specificity required to transform a claim from one claiming only a result to one claiming a way of achieving it."

In re Gopalan, 809 F. App'x 942, 943–44, 946 (Fed. Cir. 2020).

Example 39 of the 2019 PEG illustrates why the machine learning algorithm recites a judicial exception rather than a technical improvement sufficient to integrate the judicial exception into a practical application. In Example 39, the claimed method collects a set of digital facial images from a database, transforms each digital facial image by using one or more of the specifically claimed techniques of rotating, smoothing, or contrast reduction to create a modified set of digital facial images, creates a first training set of the collected set of digital facial images, the modified set of digital facial images, and a set of digital non-facial images, and trains the neural network in a first stage. Subject Matter Eligibility Examples: Abstract Idea, at 8. Then, a second training set is created for a second stage of training using the first training set and the digital non-facial images that the neural network incorrectly detected as facial images after the first training stage. *Id.* at 9.

Here, the machine learning algorithm learns weights of features in some unclaimed manner. No training set is used to teach the machine learning algorithm. Thus, it is not clear how the learning provides more accurate results when no structured learning process or data set is used to provide a particular level of training. Learning weights in an unspecified manner does not ensure accuracy when the Specification describes features as including a wide variety of data in a member profile. Nor does claim 1 recite how the weights are used to obtain vectors of features for a "perfect candidate" to ensure that accuracy is provided in the distance calculation for a member profile. Member profiles are aggregated by applying a policy and weights learned from a machine learning algorithm to create a hypothetical perfect candidate" but no technical details are claimed. Spec. ¶ 32. Some feedback may be received but such details are not claimed. *See id.* ¶ 43.

If the requirements of Section 101 could be circumvented simply by appending a generic "machine learning algorithm" or generic "processor" to a claim that recites an abstract idea, the § 101 analysis would become an exercise in drafting.

> The fact that a computer "necessarily exist[s] in the physical, rather than purely conceptual, realm," Brief for Petitioner 39, is beside the point. There is no dispute that a computer is a tangible system (in § 101 terms, a "machine"), or that many computer-implemented claims are formally addressed to patent-eligible subject matter. But if that were the end of the § 101 inquiry, an applicant could claim any principle of the physical or social sciences by reciting a computer system configured to implement the relevant concept. Such a result would make the determination of patent eligibility "depend simply on the draftsman's art," . . . thereby eviscerating the rule that "'[l]aws of nature, natural phenomena, and abstract ideas are not patentable.'"

Alice, 573 U.S. at 224.

Accordingly, we determine that claim 1 lacks any additional elements that are sufficient to integrate the abstract idea into a practical application.

Step 2B: Does Claim 1 Include an Inventive Concept?

We next consider if claim 1 recites additional elements, individually, or as an ordered combination, that provide an inventive concept. *Alice*, 573 U.S. at 217–18. This step is satisfied when claim limitations involve more than well-understood, routine, and conventional activities previously known in industry. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1367 (Fed. Cir. 2018); *see* Revised Guidance, 84 Fed. Reg. 56 (explaining that the second step of the *Alice* analysis considers whether a claim adds a specific limitation that is beyond the recited judicial exception and that also is not "well-understood, routine, conventional" activity in the field).

Considered individually, the limitations of claim 1 recite the abstract idea identified above. The Specification describes the additional elements as generic components that perform well-understood, routine, and conventional functions. It provides no indication that Appellant invented or improved these computer components but instead uses them to perform their known functions as tools to implement the abstract idea identified in Prong One.

As an ordered combination, these elements provide no more than when they are considered individually. *Alice*, 573 U.S. at 225. They are used as tools to implement the judicial exception. *See SAP*, 898 F.3d at 1169–70 (claimed databases and processors did not improve computers but used available computers and functions as tools to execute the claimed process); *Inventor Holdings, LLC v. Bed Bath & Beyond, Inc.*, 876 F.3d 1372, 1378 (Fed. Cir. 2017) (considering the steps of representative claims as an "ordered combination" reveals they "amount to 'nothing significantly more' than an instruction to apply [an] abstract idea" using generic computer technology).

Even if the steps are groundbreaking, innovative, or brilliant, that is not enough for eligibility. *See Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 591 (2013); *accord SAP Am.*, 898 F.3d at 1163 ("No matter how much of an advance in the finance field the claims recite, the advance lies entirely in the realm of abstract ideas, with no plausibly alleged innovation in the non-abstract application realm. An advance of that nature is ineligible for patenting."); *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (Fed. Cir. 2014) (where all eleven steps instructed artisan to implement abstract idea with routine, conventional activities, that some steps were not used previously in this art did not confer patent eligibility).

"It is well-settled that placing an abstract idea in the context of a computer does not 'improve' the computer or convert the idea into a patent-eligible application of that idea." *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1346 (Fed. Cir. 2018). A similar claim to an online method of matching loan applications of borrowers with lenders was not patent eligible.

> We find that claim 1 does not recite any elements that individually, or as an ordered combination, transform the abstract idea of coordinating loans into a patent-eligible application of that idea. "At best, the claim[ ] describe[s] the automation of [a] fundamental economic concept . . . through the use of generic-computer functions." *OIP Techs.,* [*Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015)]. It is well settled, though, that automating conventional activities using generic technology does not amount to an inventive concept. *See Alice*, 134 S. Ct. at 2358 (explaining that "if a patent's recitation of a computer amounts to a mere instruction to implement an abstract idea on . . . a computer, that addition cannot impart patent eligibility") . . .; *Intellectual Ventures*, 792 F.3d at 1367 ("claiming the improved speed or efficiency inherent with applying the abstract idea on a computer [does not] provide a sufficient inventive concept"); *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Can. (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) ("[T]he fact that the required calculations could be performed more efficiently via a computer does not materially alter the patent eligibility of the claimed subject matter.").

LendingTree, 656 F. App'x at 991; *see also Jobin*, 811 F. App'x. at 637–38 ("[T]he 'online system,' 'server,' 'data structure,' and 'user device' elements recite generic technology for implementing the claimed abstract idea. The Board correctly concluded that, considered individually or as an ordered combination, the additional elements in Jobin's claim 221 do not transform the claim into a patent eligible application of the abstract idea.").

Even if the claims do not monopolize the abstract idea as Appellant asserts (Reply Br. 8), the Examiner's § 101 analysis addresses Appellant's argument. "[W]hile preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility." *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1098 (Fed. Cir. 2016) (*quoting Ariosa Diagnostics, Inc. v. Sequenom, Inc.,* 788 F.3d 1371, 1379 (Fed. Cir. 2015)); *OIP*, 788 F.3d at 1362–63 ("[T]hat the claims do not preempt all price optimization or may be limited to price optimization in the e-commerce setting do not make them any less abstract."). Furthermore, as the court held in *Ariosa*, "[w]here a patent's claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, as they are in this case, preemption concerns are fully addressed and made moot." *Ariosa,* 788 F.3d at 1379.

Accordingly, we determine that claim 1 lacks an inventive concept sufficient to transform the abstract idea into patent eligible subject matter. Thus, we sustain the rejection of claims 1–20.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/ Basis	Affirmed	Reversed
1–20	101	Eligibility	1–20	

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

AFFIRMED