CLAIMS

What is claimed is:

1. A computer-implemented method of automating an adoption of cloud services, the method comprising:

developing, by the one or more processors, a machine learning model to learn application source code accessed from a source code repository;

training, by the one or more processors, the machine learning model by building training data that includes the application source code and technical labels;

based on the training data, automatically extracting, by the one or more processors, services from the application source code and deriving, by the one or more processors, a context of the application source code, the extracting and the deriving performed by applying the machine learning model to the application source code;

using a natural language processing module and based on the context of the application source code, determining, by the one or more processors, functionalities of the extracted services;

using a decision tree model and based on the functionalities of the extracted services, determining, by the one or more processors, a mapping of the extracted services to respective cloud services, so that a functionality of one or more cloud services mapped to a given extracted service by the mapping matches a functionality of the given extracted service; and

based on the mapping, identifying, by the one or more processors, portions of the application source code specifying the extracted services, the portions of the application source code being recommended for the adoption to be replaced by the respective cloud services.

2. The method of claim 1, wherein the identifying the portions of the application source code that are recommended to be replaced by the respective cloud services includes generating a

recommendation of an optimal amount of refactoring of a portion of code included in the application source code to incorporate a cloud service included in the cloud services.

3. The method of claim 1, further comprising based on the identified portions of the application source code, recommending, by the one or more processors, target cloud services to replace existing modules in the application source code.

4. The method of claim 1, further comprising:

determining, by the one or more processors, modifications of the portions of the application source code needed to adopt the respective cloud services; and

refactoring, by the one or more processors, an application by using the modifications of the portions of the application source code.

5. The method of claim 1, further comprising:

determining, by the one or more processors, financial benefits of adopting the cloud services by integrating with cloud brokerage tools; and

displaying, by the one or more processors, (i) the cloud services that are to replace the portions of the application source code and (ii) the financial benefits of adopting the cloud services, the displaying performed on a display device for viewing by a customer.

6. The method of claim 1, wherein the determining the mapping of the extracted services to the respective cloud services includes mapping a first one or more extracted services included in the extracted services to respective one or more public cloud services and mapping a second one or more extracted services included in the extracted services to respective one or more private cloud services.

7. The method of claim 1, wherein the training includes:

generating, by the one or more processors, a code pattern configuration file that includes key words specifying available cloud services; and

identifying, by the one or more processors, the key words included in a portion of the application source code.

8. The method of claim 1, wherein the developing the machine learning model includes developing a natural language processing model by using a multi-label text classification approach.

9. The method of claim 1, further comprising repeating, by the one or more processors, for each application in an application portfolio of an organization, the developing the machine learning model, the training the machine learning model, the extracting the services from the application source code and the deriving the context of the application source code by applying the machine learning model to the application source code, the determining the functionalities of the extracted services, the determining the mapping, and the identifying the portions of the application source code that are recommended to be replaced.

10. The method of claim 1, further comprising:

providing at least one support service for at least one action selected from the group consisting of creating, integrating, hosting, maintaining, and deploying computer readable program code in a computer, the program code being executed by a processor of the computer to implement the developing the machine learning model, the training the machine learning model, the extracting the services from the application source code and the deriving the context of the application source code by applying the machine learning model to the application source code, the determining the

functionalities of the extracted services, the determining the mapping, and the identifying the portions of the application source code that are recommended to be replaced.

11. A computer program product for automating an adoption of cloud services, the computer program product comprising:

one or more computer readable storage media having computer readable program code collectively stored on the one or more computer readable storage media, the computer readable program code being executed by a central processing unit (CPU) of a computer system to cause the computer system to perform a method comprising:

the computer system developing a machine learning model to learn application source code accessed from a source code repository;

the computer system training the machine learning model by building training data that includes the application source code and technical labels;

based on the training data, the computer system automatically extracting services from the application source code and the computer system deriving a context of the application source code, the extracting and the deriving performed by the computer system applying the machine learning model to the application source code;

using a natural language processing module and based on the context of the application source code, the computer system determining functionalities of the extracted services;

using a decision tree model and based on the functionalities of the extracted services, the computer system determining a mapping of the extracted services to respective cloud services, so that a functionality of one or more cloud services mapped to a given extracted service by the mapping matches a functionality of the given extracted service; and

based on the mapping, the computer system identifying portions of the application source code that are recommended for the adoption to be replaced by the respective cloud services.

12. The computer program product of claim 11, wherein the identifying the portions of the application source code that are recommended to be replaced by the respective cloud services includes generating a recommendation of an optimal amount of refactoring of a portion of code included in the application source code to incorporate a cloud service included in the cloud services.

13. The computer program product of claim 11, wherein the method further comprises the computer system recommending target cloud services to replace existing modules in the application source code.

14. The computer program product of claim 11, wherein the method further comprises:

the computer system determining modifications of the portions of the application source code needed to adopt the respective cloud services; and

the computer system refactoring an application by using the modifications of the portions of the application source code.

15. The computer program product of claim 11, wherein the method further comprises:

the computer system determining financial benefits of adopting the cloud services by integrating with cloud brokerage tools; and

the computer system displaying (i) the cloud services that are to replace the portions of the application source code and (ii) the financial benefits of adopting the cloud services, the displaying performed on a display device for viewing by a customer.

16. A computer system comprising:

a central processing unit (CPU);

a memory coupled to the CPU; and

one or more computer readable storage media coupled to the CPU, the one or more computer readable storage media collectively containing instructions that are executed by the CPU via the memory to implement a method of automating an adoption of cloud services, the method comprising:

the computer system developing a machine learning model to learn application source code accessed from a source code repository;

the computer system training the machine learning model by building training data that includes the application source code and technical labels;

based on the training data, the computer system automatically extracting services from the application source code and the computer system deriving a context of the application source code, the extracting and the deriving performed by the computer system applying the machine learning model to the application source code;

using a natural language processing module and based on the context of the application source code, the computer system determining functionalities of the extracted services;

using a decision tree model and based on the functionalities of the extracted services, the computer system determining a mapping of the extracted services to respective cloud services, so that a functionality of one or more cloud services mapped to a given extracted service by the mapping matches a functionality of the given extracted service; and

based on the mapping, the computer system identifying portions of the application source code that are recommended for the adoption to be replaced by the respective cloud services.

17. The computer system of claim 16, wherein the identifying the portions of the application source code that are recommended to be replaced by the respective cloud services includes generating a recommendation of an optimal amount of refactoring of a portion of code included in the application source code to incorporate a cloud service included in the cloud services.

18. The computer system of claim 16, wherein the method further comprises the computer system recommending target cloud services to replace existing modules in the application source code.

19. The computer system of claim 16, wherein the method further comprises:

the computer system determining modifications of the portions of the application source code needed to adopt the respective cloud services; and

the computer system refactoring an application by using the modifications of the portions of the application source code.

20. The computer system of claim 16, wherein the method further comprises:

the computer system determining financial benefits of adopting the cloud services by integrating with cloud brokerage tools; and

the computer system displaying (i) the cloud services that are to replace the portions of the application source code and (ii) the financial benefits of adopting the cloud services, the displaying performed on a display device for viewing by a customer.