The Islamic University of Gaza
Faculty of Information Technology
Advanced Software Development (SDEV 4304)

Developing a Cloud-Based IT Training Management Application

You are required to develop a cloud-based application for training management in information technology. The application consists of the following components:

1. **Trainee component**: Trainees are the end users of the application.
   1.1. A valid trainee must register first to use all the features of the application.
   1.2. The trainee needs to enter necessary information and upload documents for registration.
   1.3. He can upload personal files and training material he has accomplished such as videos, images, infographs, animated gifts, programming codes, etc. so that his adviser can see and check them.
   1.4. A trainee can apply for training and can select one or more training programs based on his desired field and area of training.
   1.5. He can fill-in training attendance forms.
   1.6. He can also request for a meeting with his advisor. In requesting a meeting, the application must resolve any conflicts (e. g., If two trainees requesting a meeting with the same advisor at the same time).
2. **Manager component**: The manager is the person who has a training back-ground. The functions of a manager are as follows:
   2.1. Review training requests and decide whether to accept them or not based on a given criteria.
   2.2. Generation of unique trainee ID: After verifying all the information and documents of a new trainee, the manager registers the trainee as an authorized user and sends a unique trainee ID for future login.
   2.3. Authentication with trainee ID: Whenever the trainee wants to login again, the manager first verifies the entered trainee ID.
   2.4. Update the data in cloud: The trainee or the advisor cannot update or perform any modification on the data stored in the cloud. Only the manager has the rights to update the cloud's data to ensure data

security. However, a trainee can update his own information and documentation as needed or as requested by his advisor.

2.5. Account management: All registered trainees' accounts are managed by the manager, who has the backup of all information related to a trainee's account.

2.6. Billing issues: For accessing the application and cloud, the trainee has to pay fees. All billing issues are handled by the manager.

3. **System component**: Cloud application stores trainees' records, performs computation and any needed functionality such as trainee-advisor appointment management, notifications, emailing, searching, advertising such as pop-up general medical advices.
4. **Advisor component**: Advisors are important users of the application.

4.1. A valid advisor must register first to use all the features of the application.

4.2. The advisor needs to send necessary information for registration.

4.3. Advisors are classified based on their discipline (e. g., programming, graphic design, video editing, Data base specialist, data analyst, etc.

4.4. An advisor manages his own trainees, e.g., accepts and schedules meetings with his trainees, follows up his trainees. He also can see a list of his trainees such as new trainees, on training trainees, etc.

4.5. Sends notifications or emails to his trainees as needed.

In developing the application, you must satisfy the following requirements:

1. The application can use a SQL and NoSQL database as necessary for storing and retrieving data.
2. As stated above the application must have meetings management, notifications, emailing, searching, advertising such as pop-up general training advices and ads. These advices and ads have to be displayed on the advisor/trainee screens while working in any of their screens.
3. All user activities in the system must be tracked and recorded by the application with date and time. This includes advisor as well as trainee numbers and activities. This functionality is related to the manager and partly to the advisor (for his trainees).
4. Based on requirement no. 3, the application must have its own analytics as necessary. This includes all activities performed by the admin, the advisor and the trainee. All processing, storage, and main activities of the application

must be tracked through such analytics. Use the analytics tools of the selected PaaS.

5. The application must have a user friendly GUI with emphasis to each of its users (manager, advisor, and trainee).
6. Any cloud-based additions and improvements you might consider related to the application (This will worth additional credits).
7. You can use the platform (PaaS) of your choice and deploy it on the cloud of your choice.
8. The application must follow a well-defined and clear cloud based software methodology. You have to document your development process adapting cloud-oriented software development methodology showing your specification, design, architecture, implementation, and deployment to the cloud. The documentation must include a description of the used cloud platform (PaaS). Also, it must include a user guide on how to access and use the application. Also, it must include a user guide on how to access and use the application.

Submissions:

- Software containing the above and any used packages and libraries. A link to the cloud application. It should be fully up and running.
- A software development report based on the last requirement (follow the given template).

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