### ***EVA Hackathon Assessment and Video CV-Software Track***

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Task 1 Answer:

1- OOP : is a programming paradigm to organize and improve code quality by separate it using classes to be more readable and maintenances and you can use these classes by create objects Like (C# , JAVA,C++ ),

Procedure Programming: is a programming paradigm to organize the code by using functions and it use step by step execution technique Like (C programming language )

2- Interface : contains only declaration of methods not include its implementation not contain access modifiers it contain the default (public) doesn’t contain a constructor or static properties and when I implements this interface I should implements all the body of every method

Abstract : it may has declaration of the methods and although can have a concrete methods , it have a constructor, can contains different access modifiers , can has a static properties.

3- Database : is a way to store data to return for it later not to be volatile like storing in memory when the PC shut down lose all the data

SQL : Is a Relational Database it stored in tables and columns and have a relations between tables it uses when more relations between data like (MSSQL)

NO-SQL : Is a Non Relational Database it almost represents in key-value format and uses in big data , social media …, etc like (MongoDB)

4- Unite test :this is component test during development it test every components individually and separately

Integrate test : it is test between two software unites or modules and it focus on the correctness of the interface

5- Unit testing focuses on testing individual components or units of code in isolation, ensuring they behave as expected. It is done at the method or function level, with the aim of catching bugs early, enhancing code maintainability, and providing a safety net for code changes.

Integration testing, on the other hand, verifies the interaction and collaboration between different components or modules of an application. It tests the integration points and flow of data or control between units, including real or simulated dependencies on external systems. Integration testing helps ensure that components work together correctly and uncover issues that may arise due to integration.

Both unit testing and integration testing are essential in software development. They contribute to early bug detection, improve code quality, increase developer confidence, prevent regressions, and facilitate collaboration and documentation. By combining these methodologies, development teams can create reliable and maintainable software applications.

6-Compiled language: translate complete file from programming language into machine code then execute it and can be rerun the executed file like (C++)

Interpreter language: translate statement by statement and directly execute it, and not generate executed file like(Python)

7-A REST (Representational state transfer) API is an architectural style for an application program interface (API) that uses HTTP requests to access and use data.

A RESTful API uses HTTP methods to carry out CRUD operations

GraphQL is an application layer server-side technology that is used for executing queries with existing data, while REST is a software architectural style that defines a set of constraints for creating Web services.

GraphQL can be organized in terms of a schema, whereas REST can be arranged in terms of endpoints.

The development speed in GraphQL is fast, while the development speed in REST is Slow.

The message format for GraphQL mutations should be a string, while the message format for REST mutations can be anything.