

Programme

Diploma in Software Development– 240 Credits

Bachelor in Software Engineering -360 CreditsYear Two

Course

203 Investigative Studio 1

Assessment 1

**Multiple Choice Questions**

Weighting within course: **25%**

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| **Description** | **:** | **MCQ** | | | |
| Learning Outcomes | **:** | **Applicable course outcomes:** |  | **Wtg. %** | **Points** |
| **LO2:** Demonstrate an understanding of experimental practice-based inquiry. |  | 25% | 20 |
|  | **:** | Time : 60 minutes | | | |

**Answer question 1 based on the scenario below:**

1. A retail chain company XYZ is planning to migrate from its current database to SQLite. The database stores details of their products, inventory, customers, and sales. The company wants to make sure that the migration process is smooth, and all the data is correctly transferred to the new database. Your team have been tasked with managing the migration process.

What should your team do first before migrating the database over to SQLite:

1. Install the SQLite database engine.
2. Backup the exiting database
3. Check the hardware requirements for the SQLite.
4. Determine the number of users on the Database system.

1. A mobile app development team is creating an app that requires a database to store user information, preferences, and settings. They have decided to use SQLite as their database engine due to its lightweight and serverless architecture.

Which of the following is a key advantage of using SQLite in this scenario?

1. SQLite can handle a high volume of concurrent transactions.
2. SQLite can be easily integrated with other databases, such as MySQL and PostgreSQL.
3. SQLite is designed to support large-scale enterprise applications.
4. SQLite is self-contained and does not require a separate server process to manage connections.

1. Which of the following is a correct way to define a Flask route that accepts a variable in the URL?

1. @app.route("/page?id=int:id")
2. @app.route("/page/<id>")
3. @app.route("/page/int:id")
4. @app.route("/page?id={int:id}")

1. A group of Yoobee students is working on a group project, and they decide to use Git and GitHub for version control and collaboration. They create a new GitHub repository and start working on the project. One of the students, Ollie, is responsible for managing the repository and ensuring that the project is well organized. He wants to make sure that everyone is following best practices when using Git and GitHub. What is the purpose of using Git and GitHub in a group project?

1. To store the project files on a remote server
2. To enable collaboration and version control among team members
3. To make the project files publicly accessible
4. To enable real-time communication among team members

1. In Question 4 above, which of the following Git commands should the students used to undo the last commit?

1. git reset
2. git revert
3. git checkout
4. git merge

1. What is the difference between the Prototype Design Pattern and the Factory Design Pattern?

1. The Prototype Design Pattern uses inheritance, while the Factory Design Pattern uses composition.
2. The Prototype Design Pattern allows you to create new objects by copying existing ones, while the Factory Design Pattern uses factory methods to create objects.
3. The Prototype Design Pattern is used for creating similar objects with minor differences, while the Factory Design Pattern is used for creating families of related objects.
4. There is no difference between the two patterns.

1. Which of the following is NOT a goal of generating prototypes in software development?

1. To validate the design of the software product
2. To identify potential issues and areas of improvement
3. To create a finished product ready for release
4. To receive feedback from users and stakeholders

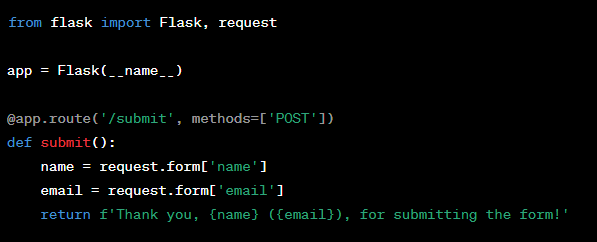
1. The software development team at ABC Corp is working on a new project that involves building a GUI for a productivity software. The GUI needs to be user-friendly, visually appealing, and easy to navigate. The team consists of three developers, a UI/UX designer, and a project manager. The project manager wants to ensure that the GUI meets the client's requirements and that the project is delivered on time and within budget. Which of the following techniques can the team use to gather feedback on the GUI design?

1. Conduct usability testing with target users
2. Conduct a focus group with non-users
3. c.) Rely on personal opinions of team members
4. d.) None of the above

1. Considering the scenario in Question 8, which of the following design patterns is best suited for the GUI?
2. Model-View-Controller (MVC)
3. Singleton
4. Decorator
5. Chain of Responsibility

1. Company ABC has a large codebase for their e-commerce platform. Recently, they added a new payment gateway to their website. The development team has identified that the code for the payment gateway integration is duplicated in multiple files. They want to follow the DRY coding principle and refactor the code. What is the best approach to follow in this scenario?

1. Create a new function for the payment gateway integration and call it in each file.
2. Move the payment gateway integration code to a separate file and import it in each file.
3. Leave the code as it is since it is working fine.
4. Rewrite the code for the payment gateway integration from scratch.
5. In the below example, what is the purpose of the object **‘request’**.



1. To access user input from an HTML form submitted with the HTTP POST method.
2. To define the structure of a Flask application
3. To manage database queries
4. To execute background tasks
5. When might the Prototype Design Pattern be useful?
6. When creating new objects is a time-consuming or complex process.
7. When creating objects with minor differences from existing ones
8. When there are many objects with similar behaviour but different implementations.
9. All of the above.

1. How do you define a variable in a Flask route?

1. By placing it inside angle brackets '<>' in the URL path
2. By using the '@variable' decorator before the route function
3. By defining it as an argument in the route function
4. By using the 'variable=' parameter in the route function
5. How do you run a Flask application in debug mode?

1. By setting the 'debug' parameter to True when calling the 'app.run()' method.
2. By running the 'flask debug' command
3. By setting the 'FLASK\_DEBUG' environment variable to 1
4. By running the 'flask run --debug' command
5. What is the purpose of a proof of concept in software development?

1. To showcase the final product to stakeholders
2. To test the viability of an idea
3. To finalize the design of the software
4. To skip the development phase

16. What is the benefit of creating a proof of concept before creating a prototype?

1. It saves time and money in the development process
2. It allows for testing and feedback early on
3. It ensures that the final product will be perfect
4. It eliminates the need for quality assurance testing

1. Company A has a large codebase for their enterprise application. The development team has identified that there is a lot of redundant code throughout the application. What is the best approach to follow in this scenario to follow the DRY coding principle?

1. Rewrite the entire application from scratch to remove redundant code.
2. Use automated tools to identify and remove redundant code.
3. Encourage developers to manually identify and remove redundant code.
4. Create a common library of functions and import them in the application.

1. Company XYZ is developing a new web application that requires user authentication. They plan to store user credentials in a database table and use a hash function to encrypt the password. What is the best practice for storing passwords securely in a database?

1. Use a reversible encryption algorithm to store passwords.
2. Store passwords in plain text format in the database.
3. Use a strong hash function with a unique salt value for each user.
4. Implement two-factor authentication to enhance security.
5. Company SRT is developing a mobile application that requires user authentication. The development team wants to implement a session-based authentication system. What is the best practice for implementing session-based authentication?

1. Use short session timeouts to reduce the risk of session hijacking.
2. Store user credentials in the client-side cookie for faster authentication.
3. Use HTTPS to encrypt data transmitted between the client and server.
4. Implement a password expiration policy to force users to change their passwords regularly.

1. What is the best way to handle a situation where a software project manager realizes that the Python project, they are working on is running behind schedule and may not meet its deadline?

1. Perform code review and consider new coding approaches
2. Ask the development team to work longer hours until the deadline is met
3. Re-evaluate the project timeline and adjust the scope of the project if necessary
4. Assign responsibility to individual team members and hold them accountable for the delay

**Result**

**Points:**

**Percentage:**