FULLSTACK ASSESSMENT MATERIAL RELEASE

THEORY QUESTIONS

1. **In design Heuristics, what does the term “advantages of Matching between system and the real world” mean? What are the advantages?**

The system must speak the user's language using words, phrases, and concepts that are familiar to the user rather than system-oriented terms. Additionally, the system should ensure that information is displayed in a natural and logical order. The closer interactions are to real-world models, the easier it is for the user.

One of the advantages of this heuristic is efficiency. When the system aligns with the mental models (thought processes about how something works in the real world) of users, it makes them more able to predict the behaviour of a system or application in certain situations or scenarios. This predictability empowers users to carry out tasks more efficiently and aids them in making accurate decisions, resulting in a user-friendly experience. In the same way, it helps with error prevention. Moreover, when there is a matching between the system and the real world" , in other words, when a system resembles the real world,users can make effective use of what they already know and their experiences. This results in an intuitive and user-friendly UI where the users quickly understand how to interact with the system, which decreases the learning process. In addition, the heuristic can result in user engagement and satisfaction. When a system is seen as intuitive and user-friendly, it logically has an impact on overall user satisfaction. Including and considering real-world elements in a system or application fosters a positive user experience, which also has the benefit of high user engagement and loyalty as well as the potential to attract more users due to recommendations.

2.

What do you understand by “Single source of truth”? And how does it relate to redux? What are the advantages ?

"Single source of truth" means having one central place where all the data of an application is stored. In the context of Redux, a JavaScript and state management library, it means that there is a central store that holds all the data for the application; in other words, Redux provides a single store that can be used to manage a large amount of data.

The advantage of having a single source of truth in Redux is that it brings consistency and predictability to the application. Every component of the application makes use of this central store to access and change the data, guaranteeing that everyone is using the same data. The application will be simpler to manage and debug thanks to its consistency.

In addition, testing gets simpler. Writing tests to determine whether the programme functions properly is made easier because all the data is in one location. Moreover, the application becomes more scalable as a result of having a single source of truth. A central store assists in managing the data while making sure it is organised and accessible as the application grows more complicated.

In conclusion, Redux provides advantages such as consistency, predictability, scalability, faster testing, and improved debugging due to the single source of truth. It helps developers efficiently manage and maintain their applications.

3.

What is the difference between a stateless component and a stateful component in React?

The difference between a stateless component and a stateful component is mainly in their capability for managing data.
A stateless component, is a functional component that takes in props as input and returns JSX code to render the UI. It doesn't have its own internal state,

instead, it focuses on showing data based on the given props.On the contrary, a stateful component (class component) is a more complex feature. It is implemented as a class that extends *react.component* class. Stateful components are able to manage their own internal state by using the setState method. This enables them to manage user interactions, store and update data over time, and respond to component-specific events. In conclusion, stateless components are primarily used for displaying data based on the given/received props, while stateful components can manage their own data and respond to user interactions.

4.

List out the advantages and disadvantages of exploratory testing(used in Agile) and scripted testing?

Advantages of exploratory testing

- Flexibility: Exploratory testing gives testers the flexibility to adapt their approach based on real-time observations, ensuring comprehensive test coverage that aligns with the specific requirements of the project.
- Responsiveness: Testers can quickly respond to changes in Agile projects without extensive pre-planning, enabling efficient and timely testing.
- Tester's expertise: exploratory testing makes the most of testers' abilities and expertise, enabling them to spot important problems and offer insightful advice based on their understanding.
- Bug detection: exploratory testing can help finding bugs and usability problems that scripted testing might miss, resulting in a more robust and reliable product.

Disadvantages of exploratory testing

- Potential coverage gaps: Because exploratory testing is flexible, there is a chance that some sections or situations might be missed unintentionally, resulting in insufficient test coverage.

Advantages of Scripted Testing:

- Reproducibility: Scripted testing ensures consistent test execution as predefined test cases can be reproduced accurately.
- Comprehensive coverage: Scripted testing covers a wide range of scenarios and functionalities, allowing for thorough validation of the system against specific requirements.
- Automation potential: Scripted tests can be automated, saving time and effort in executing repetitive tests and facilitating regression testing.

Disadvantages of Scripted Testing:

- Lack of flexibility: Because changing and updating test scripts can be time-consuming, scripted testing may not be flexible when faced with modifications or upgrades.
- Limited adaptability: Scripted tests may not effectively handle new or unexpected scenarios that were not considered during the creation of test scripts, potentially missing critical issues.