CODE FIRST GIRLS

CFGDEGREE

FULLSTACK ASSESSMENT MATERIAL RELEASE

THEORY QUESTIONS

SECTION TYPE	TOTAL MARKS AVAILABLE	NOTES
Design heuristics	10	
Redux	10	
React	10	
Agile	10	
40 marks available total		

Important notes:

- This document shares the first section of the FullStack Assessment which is composed of 4 FullStack Theory Questions
- You have 24 hours before the assessment to prepare.
- If any plagiarism is found in how you choose to answer a question you will receive a 0 and the instance will be recorded. Consequences will occur if this is a repeated offence. You can remind yourself of the plagiarism policy here.
- Answers need to be explained clearly and illustrated with relevant examples where necessary. Your examples can include code snippets, diagrams or any other evidence-based representation of your answer.

`Questions begin on the next page

Theory Questions	40 total

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

Design heuristics are 10 general principles for interaction design, put together by Jakob Nielsen. "advantages of Matching between system and the real world" is the second heuristic. Essentially, it supports the idea of designing a system for the human user rather than one that follows complex technical conventions. What makes sense for you and your team designing, may seem alien and unfamiliar to the user. The advantages of this are:

- Natural and logical interface with design elements that are intuitive
- This type of design makes it easier to learn and also remember how the app/website is set up and works.
- Design can be tailored to the target audience that the project serves.
- Follows real-world conventions and is therefore more accessible to a wider demographic
- People are more likely to understand design that feels familiar to them.

2. **What do you understand by "Single source of truth"? and how does it relate to redux? What are the advantages?**

Redux is described in 3 fundamental principles and "Single source of truth" is one of them. Redux consists of a single store, which is a JavaScript value that contains the whole state of the app. The advantages of this are:

- As there is only one store, debugging is much easier as there is only one value to look at. Other applications that don't utilise Redux or a similar global store, their state is stored in different locations across the entire application so it is much more difficult.
- You can make universal apps by serialising the application state and using it in other projects for the same client.
- Traditionally difficult functionality like undo and redo, is much easier to implement as the entire state is stored in a single tree
- You can have a faster development cycle as you can persist your app's state

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

Stateless Component

Stateless components, also called functional components, are ReactJS functions that return JSX to describe the appearance and structure of a component. They don't have an internal state and don't manage data. Data and behaviour are instead received through properties passed down by parent components. For example, static UI components like buttons are usually stateless. These components can receive all the data they need via properties and then render accordingly. It would be unlikely that a component like this would need to manage any state internally.

Stateful Component

Stateful components, also called class components, are ones which manage their own state. In React, "state" refers to an object that determines how a component renders and behaves. As this state can be modified over time, the component can manage and track the changes in its data which affects the rendering of the component. For example, a form input would likely be a stateful component. The form component would need to track the values of login fields such as email and password, handle those changes, and potentially control the form's submission behaviour. Using a stateful component is necessary for state management.

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

Exploratory Testing

Advantages	**Disadvantages**
Do not need any testing documents before starting	No specific time reserved for the testing phase – means it could be neglected for other tasks
More time for testing rather than documentation	Ability to reproduce bugs is more challenging as the testing process is not set out
Helps deliver high quality products	New testers may struggle getting to grips with the system as there is no clear testing process in place
Testing can be adapted to the specific needs/ issues of the project	The effectiveness of this testing comes down to the expertise and experience of the person doing the testing

Scripted Testing

Advantages	**Disadvantages**
Specific time reserved for the testing phase	Time consuming as all process and procedure must be set out and documented before any testing takes place
Ability to reproduce bugs is easier as the testing process is clearly set out	Testers follow a script to test the system so they don't get chances to explore analytical and critical thinking.
New testers can easily be included as the testing process is set out from the beginning	Finding critical bugs early on is usually harder as testers follow each test case starting from the minor functionality.