FACULTY/COLLEGE	College of Business and Economics
SCHOOL	School of Consumer Intelligence and Information Systems
DEPARTMENT	Applied Information Systems
CAMPUS(ES)	APB
MODULE NAME	Development Software 2B
MODULE CODE	DSW02B1
SEMESTER	Second
ASSESSMENT OPPORTUNITY, MONTH AND YEAR	Assignment | React | Ionic September 2021

ASSESSMENT DATE	27 September 2021 @ 15h00	Due	04 October 2021 @ 00hh00
ASSESSOR(S)	Mr. Ronny Mabokela		
DURATION	3 days	TOTAL MARKS	100

NUMBER OF PAGES OF QUESTION PAPER (Including cover page)	2

INFORMATION/INSTRUCTIONS:

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☐   Read instruction carefully to avoid making mistakes
☐   This is an open-book assessment.
☐   There are 4 questions and answer all questions.
☐   Submit the necessary files for codes and word doc for theory questions if necessary.
☐   Read the questions carefully and answer only what is required.
☐   Make sure that your submission is in a zipped

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SECTION A

QUESTION 1   **(ReactJS)**   **[20 MARKS]**

Write a React App that produce a similar credit card information as shown in the screenshot below. Create the credit card app with the components as shown, you are required to show the output of your app. Your React app should be able to the following:

- Create the user interface as show in the screenshots to represent the credit card information as shown.
- Allow the user to input the information as indicated below.
- A user must capture card number and Card holder name.
- The information such as expiry date must be a selectable item. You are required to pre-define the months and years.
- You may never allow the user to manually capture the expiry date.

- A valid credit card number must be 16 non-negative values.
- If the card number values are not entered, the only rendered components must be the #### #### ##### ####
- When a valid card number is captured the 8 middle numbers of the card number must be replaced by a **** ****
- The react app must allow the user to capture the credit card holder and CVV number.
- The CVV number must allow the user to capture only 3 numbers. A valid CVV number is a non-negative value.
- When a user hit the submit button, the card information must be displayed on a card.
- You may choose to design and style the card of your choice with some creativity.
- You must be able to handle obvious errors in you react app.
- The react app must also display the success messages once the valid information is captured.

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- If the card expiry date is closer, the react app must indicate that with a message in red color and all error messages must be displayed in a red color.

QUESTION 2 (ReactJS - Hooks) [20 MARKS]

Depends on who started. The rules of Tic-Tac-Toe state that the first player has the option to choose "X" or "O". The default is " X" and thus, often, the first player starts with a cross (X). Every odd move goes to the player who starts the game.

- The first player to move, "X" or "O" shall win the game by placing the assigned sign in the centre of the grid.

The Scenario 1:
The first player to go starts with **"X"**. The next move, the seventh one goes to "X" who places a cross in the center, completes the middle vertical line and finishes the game.

The Scenario 2:
The first player starts with "O".
The seventh move (next one) goes to "O" who places a naught in the centre, completes a diagonal and finishes the game.

- ***The game is bound to end in the next move and goes to the person who started - an advantage the one with the first move always has in this game.***
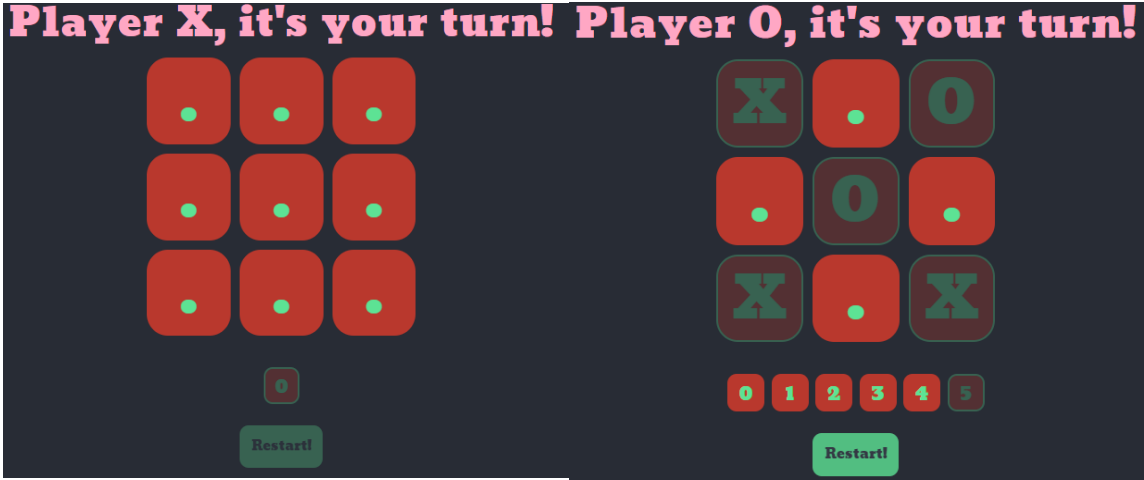
Develop a Tic Tac Toe user interface that allows users to go back and forth to previous board states during a game. Consider deriving most states rather than storing them to reduce state management complexity.

Write a user interface for **Tic-Tac-Toe.**
- Be able to pause a game, close the tab, and then resume the game later
- Additionally: Include a restart button (disabled before starting the game)
- Display the status of the game winner of the game, whose turn is next, if the game is finished etc)
- Be able to keep a history of the game; allow players to go backward and forward in time
- Record the amount of time each player 'X' or '0' won or lost.

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The top-level component manages a simple state. Whenever the state changes the system analyses the current board with a helper function to update the changes.

Examples

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SECTION B

QUESTION 3   **(Ionic | React)**   **[20 MARKS]**

As part of a development team working on a new project using React, Ionic and Capacitor API, you have been tasked to create a component that would allow users to take a picture using either the phone's camera or laptop camera (in the case of PWA) and send it to a designated address.

Study the scenario and complete the subsequent questions 3, 4 and 5 that follow:

Using ionic components:
Capture user's personal information
- Provide entry for email subject, recipient address(es) and email message
- Using Gmail or any other SMTP server, send the user's information, the captured photo (via the camera), and the message to the designated email address(es). NOTE: Picture taken should be sent as an attachment.
- Provide a confirmation message to the user regarding the status: Successful or with errors.

QUESTION 4   **(Ionic | React)**   **[20 MARKS]**

Create three (3) tabs using ionic components and migrate all the UI components of question 3 to "tab 1".

- On the second tab, using a list component, an ionic component, update the list element to reflect newly sent messages. For example, refer to your platform SMS message list.
- Specifically for this assignment, I would leave the implementation/update of the list component to each individual student to think through.
- You could use '**useContext'** or '**useState'** hooks or perhaps save the content of each message to a location on the platform and dynamically retrieve all content messages as soon as the tab is clicked.

QUESTION 5   **(Ionic | React)**   **[20 MARKS]**

Using Filesystem to save Documents leveraging on the third tab, do the following:
- Separate the content page into 2 panes:
- Top pane - allows ability to upload files/documents unto the user's platform filesystem
- Bottom pane - displays the filename of each uploaded documents
- Top pane - Provide an upload link for users to upload documents together with a button using Ionic UI components.
- On button click, save the file in a designated folder on the user's platform.
- Bottom pane - list all uploaded file names with an icon describing the file format of the specific file. For example, any file ending with a .pdf format should use an acrobat icon to represent the file.

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Submission rules:
- Submit your files in a zipped folder and label your files correctly.
- Only submit the **src** folder which is essential for your app to run effectively.
- Code will be evaluated for plagiarism, and it results to zero mark for all parties.
- Please note the 5-No-Rules: **No resubmission, No late submission, No email submission, and No WhatsApp.**
- Do not submit the question paper to online problem-solving platforms or tutors but you are allowed to question or get advises.
- Any illegal behavior will be reported to the UJ legal department.

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