**BIT306 Assignment 1**

|  |  |
| --- | --- |
| **Release date** | 03/02/2023 |
| **Due date** | 03/03/2023, by 2.00pm |
| **Value** | 35% of total assessment |
| **Marks** | Marked out of 100 |
| **Assessment mode** | Group Assessment (2 students) |

1. **Rationale**

This assignment has been designed to allow students to test and demonstrate their understanding and ability to implement **HTML5, CSS, Angular and relevant libraries/frameworks** to develop a front-end web application.

On completion of this coursework, the student will be able to:

* CLO2: Evaluate the applications of different libraries, frameworks and technologies in creating a web application.
* CLO3: Develop responsive and dynamic web applications using current technologies.

1. **Assessment Requirements:**
2. Student is required to develop an application which manages an information system. Details of functionalities to be included in this application are stated in Section C.
3. You are not allowed to use any content management system such as Joomla, Drupal and WordPress for this assignment. You can use code editor such as Visual Studio Code or Atom.
4. Student is required to submit:
   * All the source code files for this application (LMS – Source Code Submission Link)
   * Report (Word document) ( LMS Turnitin)
5. **Questions**

**FlexIS**

The Covid-19 pandemic and the need for physical distancing and isolation resulted in worldwide adoption of “work from home” practices. As organizations resume returning to the workplace, many employees have requested to continue working from home or a hybrid model where they practice a combination of work from home and work from office during the work week.

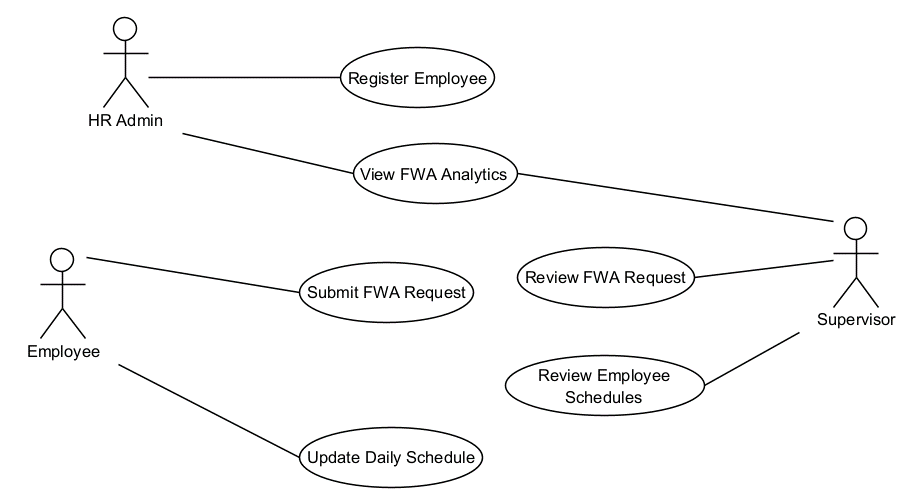
The Malaysian government has in fact made amendments to the employment act to include flexible working hours, to be effective from September 1, 2022 (Tan, 2022). Employees can now write in to request for flexible working arrangements (FWA), and employers will review their requests.

Some challenges that might be faced in the implementation are handling and approving requests for flexible working arrangements and managing the schedules of various employees.

Once employees have been granted the FWA, it would be up to the organization to manage the implementation so as to enable a productive and cost-efficient working environment.

**Part A**

FlexIS is an information system that has been proposed to record and manage employee requests for flexible work within an organization. Employees will write to their supervisors, who will review the requests and decide on whether to allow it. If the requests are approved, the employees will have to submit their daily schedule so that the supervisors will know where they are and what they will be working on. In this way, the productivity of the employees can be tracked so that the organization can determine if the flexible working arrangements have been a success.

The use case diagram is shown in Fig. 1:

**Figure 1: FlexIS Use Case Diagram**

The conceptual model for FlexIS is shown in Fig. 2.

Diagram

Description automatically generated

**Figure 2: FlexIS Class Diagram**

|  |  |  |
| --- | --- | --- |
| Use Case 1 | Register Employee | |
| Goal in Context | To record an Employee into FlexIS | |
| Primary Actor | HR Admin | |
| Trigger |  | |
| **Typical Course of Events** | | |
| **Actor Action** | | **System Response** |
| 1. This use case begins when the HR Admin wants to record a new employee into FlexIS. | | . |
| 1. The HR Admin selects the department based on the department ID. | | The department name is shown. |
| 1. The HR Admin records the employeeID, name, position and email of the employee. | | The employee is recorded for the department. An email is sent to the employee with a generated password for the staff to log in to FlexIS. The FWAStatus of the employee is set to “New”. |
| 1. The HR Admin records the employeeID of the employee’s supervisor. | | The supervisor’s name is shown and the supervisor is recorded for the employee. |
| **Alternative Course of Events** | | |
| Line 4: IF the employee has no supervisor, skip line 4. | | |

|  |  |  |
| --- | --- | --- |
| Use Case 2 | Submit FWA Request | |
| Goal in Context | To allow an employee to submit a request for flexible working arrangements. | |
| Primary Actor | Employee | |
| Trigger | The employee wants to apply for flexible working arrangements. | |
| **Typical Course of Events** | | |
| **Actor Action** | | **System Response** |
| 1. This use case begins when an employee logs in with a valid employeeID and password to request for flexible working arrangements (FWA). | | Validate the employeeID and password. |
| 1. The employee records the workType (flexi-hour, work-from-home or hybrid), description and reason for the FWA request. | | The requestID is automatically generated. The request date is set to the system date. The request status is set to “pending”. |
| 1. The employee confirms the request and logs out. | | An email is sent to the employee’s supervisor to inform that there is a pending request. |
| **Alternative Course of Events** | | |
| Line 1a: If the employeeID is invalid, show an error for incorrect employeeID. | | |
| Line 1b: If the password is invalid, show an error for incorrect password. | | |
| Line 1c: If the status of the employee is “New”, request the employee to change the password. Then change the status of the employee to “None” | | |

|  |  |  |
| --- | --- | --- |
| Use Case 3 | Review FWA Request | |
| Goal in Context | To allow a supervisor to approve or reject an FWA Request. | |
| Primary Actor | Supervisor | |
| Trigger | A supervisor has received an email informing about a new FWA Request. | |
| **Typical Course of Events** | | |
| **Actor Action** | | **System Response** |
| 1. The supervisor logs in with a valid employeeID and password | | .Validate the employeeID and password |
| 1. The supervisor chooses to review FWA Requests. | | A list of employees under this supervisor who have FWA requests with status “pending” is shown. |
| 1. The supervisor chooses an employeeID to review the request. | | The FWA Request made by the employee that has status “pending” is shown. |
| 1. The supervisor chooses to accept or reject the request and may enter comments. | | The status of the FWA Request is updated (accepted or rejected). If the request is accepted, the status of the Employee is changed to the work type that was requested (Flexi-hour, work-from-home or hybrid). An email is sent to the employee who made the request to inform about the request status. |
| **Alternative Course of Events** | | |
| Line 1a: If the employeeID is invalid, show an error for incorrect employeeID. | | |
| Line 1b: If the password is invalid, show an error for incorrect password. | | |
| Line 1c: If the status of the employee is “New”, request the employee to change the password. Then change the status of the employee to “None” | | |
| Line 3: The supervisor may view past requests made by this employee, if there are any. | | |
|  | | |

|  |  |  |
| --- | --- | --- |
| Use Case 4 | Update Daily Schedule | |
| Goal in Context | An employee updates their daily working schedule. | |
| Primary Actor | Employee | |
| Trigger | An employee wants to update the daily working schedule | |
| **Typical Course of Events Actor Action** | | **System Response** |
| 1. This use case begins when an employee logs in to update their working schedule | | . |
| 1. The employee selects the date | | The daily schedule is shown. |
| 1. The employee enters the work location, work hours (8am – 4pm, 9am – 5pm or 10am – 6pm) and work report. | |  |
| 1. The employee confirms the daily schedule. | |  |
| **Alternative Course of Events** | | |
| Line 2: IF the daily schedule was already entered, the existing information is shown and the employee can update the details. | | |

|  |  |  |
| --- | --- | --- |
| Use Case 5 | Review Employee Schedules | |
| Goal in Context | The Supervisor wants to review the work locations and working hours of the employees supervised | |
| Primary Actor | Supervisor | |
| Trigger | The Supervisor wants to review the schedules of the employees supervised. | |
| **Typical Course of Events Actor Action** | | **System Response** |
| 1. This use case begins when a supervisor logs in with a valid employeeID and password to view the employee schedules. | | A list of dates for the current week is shown. |
| 1. The supervisor selects a date. | | The list of employees supervised, their work locations and the working hours is shown. |
| 1. The supervisor selects one of the employees | | The work location, work hours and work report is shown. |
| 1. The supervisor enters comments for the daily schedule. | |  |
| **Alternative Course of Events** | | |
| Line 3: If the supervisor does not want to view any individual employee, skip lines 3 and 4. | | |
| Line 4: If the supervisor does not want to write comments, skip line 4. | | |

|  |  |  |
| --- | --- | --- |
| Use Case 6 | View FWA Analytics | |
| Goal in Context | To allow the Supervisor or HR Admin to view the current employees on FWA. | |
| Primary Actor | Supervisor  HR Admin | |
| Trigger | The HR Admin or supervisor wants to view the current status of FWA in the organization. | |
| **Typical Course of Events**  **Actor Action** | | **System Response** |
| 1. This use case begins when the HR Admin or supervisor logs in to view the FWA analytics. | | .The number of employees of each FWA status (flexi hours, work from home, hybrid) is shown for each department. |
| 1. The HR Admin chooses a department to view details of FWA employees. | | The number of employees making FWA requests is shown by date. |
| 1. The HR Admin chooses a date range to view the daily schedule | | The work location and working hours for employees in the department is summarized for each date in the date range. |
| **Alternative Course of Events** | | |
| Line 2: The supervisor can only choose the department that they belong to. | | |

**Part B**

1. Produce a project **report**. Your report MUST include the following points:
2. Project title
3. Table content of the report
4. List all the technologies, frameworks and libraries used to build this web application. Justify the choice of technologies with support from existing literature.
5. Manual guide of web setting/configuration/installation of node js and packages required to execute the application
6. Screenshots of the web application that you developed (Individual and Group functionalities)
7. For each main function in the web application, include the main web coding which corresponds to it. Highlight the important points in your coding which correspond to the web output (Individual and Group).
8. List out all references that is used in APA format.
9. **Feedback Opportunities**

You will frequently be given informal verbal or written feedback regarding your performance on tasks relating to the coursework assessment during the lecture and/or tutorial sessions. Attendance is therefore important for your development and thus coursework success.

1. **Items to be submitted**

* Upload the project source code to the HLMS link provided
* Upload the project report in Word document to the HLMS link provided
* Only one submission is allowed

1. **Please note:**
2. Source code should be well documented; include comments wherever necessary.
3. Report should be prepared using a word-processing package with Times New Roman, 12-point font, 1.5 spacing and page numbering.
4. Please ensure that your work has been proof-read for spelling and for grammatical construction.
5. If you are not clear about the assignment requirements, please contact the lecturer in charge of the subject.
6. Keep a copy of each assignment you submit.
7. You must not copy material from another student. The minimum penalty which will be imposed in such cases is to give both students zero for the assignment. You may refer material from textbooks or references, but you must acknowledge the quotation, no matter how brief. Failure to do so will result in zero marks being awarded for the assignment. Refer to Academic Integrity Policy in e-learning.
8. There is no need to include the assignment question in your submitted work.
9. **Submission of assignments**

* It is recommended that your student number be included in the header or footer of every page of any assignment.
* Attach the Assignment Cover Sheet and Mark sheet provided at the end of this document for submission with your assignment.
* A penalty of 5 marks per working day deduction from the marks obtained for this assignment will be imposed for late submission.

**Marking Criteria**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CLO assessed** | **Topic** | | | **Awarded Marks** |
| CLO3: Develop responsive and dynamic web applications using current technologies | * + - 1. **Overall look of the web application (10 marks)** | | |  |
| Developing - Little artistic merit, header image, footer floats correctly under content, CSS menu correctly placed. (0-3) | Average – Artistic flair and good design look. Contents on the website well arranged. (4-6) | Excellent - Well designed appealing site using CSS layout with complete website requirements. (7-10) |
| CLO3: Develop responsive and dynamic web applications using current technologies | * + - 1. **Appropriate use of HTML elements (15 marks)** | | |  |
| Developing - Minimal and inappropriate usage of HTML tags and elements (0-5) | Average – HTML tags and elements are incorporated properly with heading, hyperlinks and lists (6-10) | Excellent – As previous level (average) but more relevant HTML elements included to develop complete website requirements. (11- 15) |
| CLO3: Develop responsive and dynamic web applications using current technologies | * + - 1. **Implementation of JavaScript Framework – Angular & relevant libraries/frameworks (40 marks)** | | |  |
| image249 Developing – Minimal and appropriate usage of Angular components (0-12) | Average – Angular components, templates, directives, and binding are incorporated properly to form basic functionalities of web application. Use of appropriate libraries and frameworks (13-25) | Excellent – As previous level (average) with complete functionalities listed in Section C using Angular component correctly. Use of appropriate libraries and frameworks effectively to enhance the dynamic of a website (26-40) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CLO3: Develop responsive and dynamic web applications using current technologies | * + - 1. **Presentation (15 marks)** | | |  |
| Developing – Lack of understanding in the development of the system, presentation was brief and poorly structured. (0-5) | Average – Showed a good understanding in the development of the system, content is relevant and organized. (6-10) | Excellent – Complete understanding in the development of the system, content is comprehensive and clearly structured. (11-15) |
| CLO2: Evaluate the applications of different libraries, frameworks, and technologies in creating a web application | * + - 1. **Report (20 marks)** | | |  |
| Developing – Proper formatting of report with most of the requirements included. Relevant web technologies listed. (0-7) | Average – As previous level (developing) with complete screenshot of websites and its corresponding coding with description. Complete web technologies listed with explanation on the applicability (8 – 14) | Excellent – As previous level (average) with discussion on web technologies implementation using literature support in the project. Comprehensive evaluation on technologies used in the web development. Appropriate APA referencing in report. (15 – 20) |
|  | **Total** | | |  |
|  | **Late Submission Penalty (-5 marks per day)** | | |  |
|  | **Missing cover Sheet (-5)** | | |  |
|  | **Missing marking scheme (-5)** | | |  |
|  | **TOTAL MARKS OUT OF 100** | | |  |