



Sri Lanka Institute of Information Technology

B. Sc. Special Honours Degree in Information Technology
Specialized in Software Engineering

Final Examination
Year 3, Semester I

SE3040 – Application Frameworks

Duration: 24 Hours

January 2021

Take-Home Exam

Instructions to Candidates:

- This paper has only one Question
- Total Marks 100
- This paper contains **three** pages with the cover page
- Please follow the provided instructions

Question 1

(100 marks)

You have been given instructions to select a real-world scenario or a problem in accordance with the following categories which can be solved using your knowledge of Application Frameworks.

Category id	Category name
0	Food and Nutrition
1	National Security
2	Electronic and telecommunication
3	Ticketing and reservation
4	Online Learning
5	Health and safety
6	Real estate
7	Streaming Services
8	Tourism
9	Fashion and beauty

You can find out your category id based on the last digit of your IT number. Suppose your IT number is IT18202020, then you are belonged to category 0, “Food and Nutrition”. Suppose your category is “Tourism”, then your first task is to design a creative scenario or a problem. As an example, you can think of something like post Covid tourism.

Then, a web solution should be implemented for the designed scenario. The web solution should be designed by following the MERN (mongoDB + Express + ReactJS + Node) full stack principles. But still you have freedom of either choosing Node Express or Spring Boot for implementing the back-end functionalities. ReactJS is a must for front-end development, **Angular or AngularJS should not be used.**

When implementing the web solution, don’t include so much additional functionalities. For an example, for the above given scenario of post Covid tourism, online lecturing, three functionalities such as tourist sign in, admin panel and tour planning can be implemented. A maximum of three functionalities will be required.

You will be evaluated based on the creativity of the scenario and the usage of the technologies. The technological stack which will be evaluated as follows.

- ReactJS
- NodeJS
- ExpressJS or Spring Boot
- RESTful web services
- MongoDB
- JEST

You must zip and upload the ReactJS working project (**excluding node_modules folder**). Do not zip the Spring project or include the database and Mongo queries hence those will be evaluated separately. Also, you must upload a **pdf document** including the answers for the following questions.

1. Describe the scenario using your own words.
2. Implementation of the main three functionalities (both frontend and backend).
3. At least one implemented RESTful web service (implemented code).
4. At least one Mongo query for a specific Mongo collection (implemented code).
5. At least one unit test using JEST to evaluate a core logic or a service (implemented code).
6. A screenshot of the home page of the running application on localhost.

Deliverables

Please follow the steps to upload the deliverables to the submission link.

1. Make sure there are no any compilation or run time issues in your ReactJS project.
2. Remove the node_modules folder from the project folder structure.
3. Add the prepared pdf document to the project folder.
4. Zip the project folder and upload using the provided submission link.

Marking Rubric

- | | |
|---|------------|
| 1. Creativity of the designed scenario | - 10 marks |
| 2. Implementing the main functionalities including frontend and backend | - 30 marks |
| 3. Implementing RESTful web services | - 20 marks |
| 4. Implementing database and Mongo collections | - 10 marks |
| 5. Implementing unit tests | - 10 marks |
| 6. UI aesthetics and usability of the UI | - 05 marks |
| 7. Coding standards and quality | - 05 marks |
| 8. Running application without compilation or run time issues | - 10 marks |

End of the Question Paper