**Faculty of Engineering and Natural Sciences**

**Kadir Has University**

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**CMPE356 SOFTWARE ENGINEERING**

**PROJECT REPORT**

**PROJECT NO:1**

**Stay Inn Hotels Reservation System with React.JS**

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1. **INTRODUCTION**

This project is a Hotels Reservation System application name is STAY INN, where users can enter the system and search for a city or hotel name, and a result appears, and the user can make a reservation from the hotel they choose. The main component of the application is for users to view hotels in various cities and make a reservation. In the side components, a management panel has been developed for admin and manager users.

The aim of the project is to create a user-friendly system where different hotels are listed for users who want to make a hotel reservation. Care has been taken to ensure that this developed system is responsive and works appropriately on desktop and mobile devices. Users can browse the listed hotels in the 4 specified cities, review hotel information and make a reservation. The features of the admin page are that the admin user can view the total number of hotels, total sales, messages received via contact us on the dashboard page, as well as access features such as user control on other pages. On the manager page, the manager user can review the monthly income of the hotel he is affiliated with, the status of reservations, update hotel information, approve or reject reservations.

The SMART goals determined and aimed to be achieved in the project are as follows:

• Specific: Users can view cities, search for hotels and make reservations.

• Measurable: Users can switch between hotels, filtering processes work correctly and reservations can be made.

• Achievable: A user-friendly interface was created using technologies such as React and Material-UI and the needs of the users were taken into account in the project.

• Relevant: Users can make hotel reservations and have easy access to the management panels. (Admin user, Manager user, User)

• Time-Bound: The project was completed and delivered within a certain time period. (February 17 – March 8)

1. **METHODOLOGY**
   1. **Research**

First of all, 3 different sites were analyzed for the development of the project. These sites are;

* **Hotels.com,**
* **Booking.com,**
* **Trivago.com**

A screenshot of a computer

AI-generated content may be incorrect.As a result of examining these sites, the deficiencies and benefits of 3 different sites were examined, these were noted and thanks to Wappalyzer, it was noted which programming languages ​​these sites used.

*Figure 1: Hotels.com home page*

A screenshot of a web page

AI-generated content may be incorrect.

*Figure 2: Trivago.com home page*

A screenshot of a computer

AI-generated content may be incorrect.

*Figure 3: Booking.com home page*

When the homepages of the three targeted sites are examined, it is understood that the search bars of all three sites are similar. The target city or hotel name, start date and end date, and the dropdown list with adult, child and pet preferences were found positive. In addition to these, the “Upcoming hotel deals” section on the trivago.com site and the “Find and book your perfect stay” sections on the hotels.com site were found positive and the decision was made to use them in the project.

A screenshot of a hotel

AI-generated content may be incorrect.

*Figure 4: Stay Inn home page and search bar inspired by Booking.com, Trivago.com and Hotels.com*

*A screenshot of a travel website

AI-generated content may be incorrect.*

*Figure 5: Stay Inn home page inspired by Trivago.com and Hotels.com*

The second phase of the research was the analysis of the technologies used in the development of the target sites with Wappalyzer. Wappalyzer is a tool that analyzes the technologies in the content of websites and determines the tech stacks used. This tool analyzes the CMS, programming languages, JavaScript frameworks (if any) used by a website, and can also detect advertising tools and security certificates [1]. As a result of the analysis conducted with Wappalayzer, it was determined that 2 out of the 3 targeted sites used React.js. As a result of this determination, the programming language to be used in the project was chosen as React.js.

A screenshot of a computer

AI-generated content may be incorrect.

*Figure 6: Wappalyzer analysis for trivago.com*

A screenshot of a computer

AI-generated content may be incorrect.

*Figure 7: Wappalyzer analysis for booking.com*

A screenshot of a computer

AI-generated content may be incorrect.

*Figure 8: Wappalyzer analysis for hotels.com*

* 1. **Technologies**
* **React**: React is an open source Javascript library used for developing user interfaces. It was developed by Meta and has been released as open source since 2013 [2]. React was used as the basic front-end framework of the project. React was preferred to create user interfaces in an effective and manageable way with its component-based structure.
* **Material-UI**: Material-UI (now known as MUI) is a popular UI library [3] that provides modern, responsive, and accessible components for React applications. Material-UI was used to design the user interface components of the application. The graphics on the admin and manager pages were designed with MUI.
* **React Router**: React Router was used to add page transition features to the project. This allowed users to easily navigate to different pages such as cities, hotels, and the admin panel.
* **Wappalyzer**: Wappalyzer was used to analyze the technological infrastructure of similar applications. This tool helped in making technological decisions by determining which technologies the applications were developed with.
  1. **Role Assignment**

After the completion of the research and technology determination processes of the project, we define our roles. In this project;

* Team Leader: Emir Esad Şahin
* Head of front-end developers: Hasan Tezcan
* Head of back-end developers: Sezai Araplarlı
* Head of Testers: Tunahan Tüze
* Head of Documentarians: xxx
  1. **Design**

The project is based on 3 target users and 3 different side projects have been developed. These users are selected as admin user, manager user and user. React Router is used to switch between these side projects and some dummy data (not complete since a database system and backend design has not been done yet) is available between these three pages. Basically;

* User Page: Users can list cities and hotels, register to the system, log in, select a hotel, and make a reservation.
* Admin Page: Admin can check incoming emails via the dashboard, view the total number of hotels in the system, and view the number of new customers. In addition, users can add users to the system, remove users from the system, access all hotels, update hotel information, and remove hotels. Finally, the admin user can update their profile.
* Manager Page: Manager can view and edit current information (of the hotel they are responsible for) via the dashboard, review reservations, and monitor monthly income and reservation status. Finally, the manager user can update their profile.

1. **MAIN FINDINGS**
   1. **Title Page**

The title page must include the title of the project, the full names of team members (i.e., authors) with their departments, the project mentor(s), and the year and term when the technical report is submitted. An example of the title page can be found on Page 16. Follow this example carefully as to form and spacing.

* 1. **Table of Contents**

Every report must have a table of contents before the main text. All numbered sectional units must be included in the table of contents, as well as the unnumbered units, such as references, etc. The format of the table-of-contents page is shown in the example on Page 15. The style and formatting of this example must be strictly followed. Note that the “TABLE OF CONTENTS” is not listed in the table of contents.

* 1. **Main Text**

The main text should follow the table contents page(s). The sectional structure of the report may vary according to the subject of the project and methods used. Nevertheless, it is natural to start the report with a section called “Introduction” where the motivation for the problem tackled in the project and the background literature are given. Also, a report is expected the have “Conclusions” section at the end that explains to what extent the aim of the project is accomplished, the conclusions to be drawn from the work done, ideas about possible future work.

It is strongly suggested that the students discuss the outline and organization of the report with their project supervisors before writing up it. Also, they are expected to prepare a draft well in advance of the submission so that it can be read and corrected before the final copy is produced. Further, they should take advantage of spell- and grammar-checking facilities in modern word processing tools.

* 1. **Appendices**

After the main body of the text there may be a last section that contains data, derivations or explanations which might be too bulky to be put into the main text. Examples of such material can be data sheets, questionnaire samples, screenshots, relatively complex charts, illustrations, maps, software listings etc.

The appendices must be numbered separately in capital letters such as A, B, etc. Since each appendix is considered as a section, the numbering of subsectional units, figures, equations, etc. must be; accordingly, for example, “Subsection A.1”, “Table “A.4”, “Figure A.5” or “Equation (B.2)”. Each Appendix must have a title just as the sections in the main text. The heading should start with the word “appendix” such as “APPENDIX A: …”.

* 1. **References List**

At the end of the report, the references cited in the text must be listed. The way to number and cite a reference within the text is described above in Section 2.7. The reference list must include *all and only* the references cited in the order they are numbered. An example of such a list is on Page 20. Note that the example list includes many reference types such as books, journal articles, chapters in an edited book, theses, conference proceedings, web pages, etc. Study and follow these examples carefully as to the font styles and information ordering.

1. **DISCUSSION**

The pdf format of the technical report and all additional documents must be uploaded to the Learn system together with the presentation file and the simulation file before the due date.

The reports must be computer typeset. Professional typesetting programs such as LaTeX are strongly recommended. Reports written in Microsoft Word are also acceptable.

1. **CONCLUSION**

The projects must be presented at the scheduled date and time in front of the intructors and the mentors of the Course. The schedule and place of presentations will be announced by each instructor who is responsible for the project. All team members are encouraged to take part in presenting the project material. Whether they do or not, in any case, they must be present at the presentation.

PowerPoint presentations are preferred. Consult the course instructor and make the necessary arrangements if you will need extra equipment for your presentation such as video-player, whiteboard, etc.

The duration of each presentation will be announced at the beginning of the project. Each project team is responsible for the presentation of their material. This time also covers answering possible questions that the audience might raise to the team and a demonstration of the product obtained as a result of the project. It is therefore important that the timing of all these activities is planned by the presenters so as to complete all of them in a given period of time. Prepare all setup necessary for the demonstration well in advance of your presentation and check thrice that everything works well. Note that the timing will be even tighter if the demonstration involves equipment that cannot be brought into the presentation hall and the audience has to go to a laboratory or somewhere else to see it.

**APPENDIX A: EXAMPLE PAGES**

This appendix shows the format of the title page, table of contents, figures, tables, and list of references in examples. Study and follow them carefully to generate these pages in your report.

Note that this booklet (except its own title page) has been typeset in the format required for the project reports. So, you can take this booklet as an example as far as the page setup, font style, size, etc., are concerned. You can also consult your project mentor or course instructor for questions you might have.

**REFERENCES**

1. Wappalyzer. Identify technologies on websites. Retrieved March 6, 2025, from <https://www.wappalyzer.com/>
2. Meta. *React – A JavaScript library for building user interfaces*. Retrieved March 6, 2025, from <https://react.dev/>
3. MUI.*MUI: The React component library you always wanted*. Retrieved March 6, 2025, from <https://mui.com/>