Kingdom of Saudi Arabia
Ministry of Education
Qassim University
College of Computer
Computer Science Department

Qassim University جامعة القصيم
College of Computer | كلية الحاسب

CS

SOFTWARE DESIGN DOCUMENT
FOR

TWALLAM-تولّم

Travelling Activity Software

Prepared by Group (G7):

• Dana AL-Duayji	421202227
• Emtenan AL-Fozan	421215099
• Huda AL-Mutairi	411201871
• Shrooq AL-Qaied	421202213
• Danah AL-Nahel	421202067
• Hagar AL-Amirini	411200703
• Kadi AL-Ali	421202256
• Jumanah AL-Matrood	421201953

Tawallam
ACTIVITY AND BUDGET SAVING

Instructor :

- Faisal AL-Hwikem

Table of Contents

1. INTRODUCTION

1.1. PURPOSE

Twallam software is an online platform that designed to provide you with activity suggestions in Saudi Arabia cities that suit your destination and budget. The aims of this application is to make travel planning easy, and making memories easier. This application can give you a great travel experience by providing you activity suggestions. Choose from culture, adventure, natural, and more experiences. All you have to do is to input your destination and your budget, and it will give you recommendations for your finances. Explore new adventures and have fun.

1.2. SCOPE

Twallam software Traveling is a great option because it gives you a great travel experience by offering many diverse activity suggestions. The software will enable you to book activities that suit you after specifying your destination and budget.

- **Features :**

- User Registration: A user can register in the software by providing his personal information.
- Booking Activity: The user can book the activity, and he can also cancel the booked activity if something happens.
- User Profile: Users can view and edit their personal information .
- Communication: The host can send notifications to the user, such as reminding the user of the booked activity couple of hours before it starts
- Search and Filter: The user can search for activities and filter the search results by number of guests, rating and availability.
- Wishlist: The user can save the selected activities and plan his trip before traveling.

- **Vision:**

Twallam software is an advanced and secure online environment for users who want to experience great activities while traveling and don't know where to go.

- **Message:**

Working to provide a technical environment to make it easier for the traveler to explore and experience various activities according to his budget and destination.

- **Constraints:**

Twallam software has various restrictions that the user should be aware of, including Internet connection requirements and the ability to access personal data such a phone number, email address, and payment card.

1.INTRODUCTION

1.3. STRUCTURE

1.Introduction: Describe the idea of the software and its features in general.

2.System Overview: Description of all function factors, user classes and tools used to implement the software.

3.Functional Requirements: Describe what the system does and what the system has to offer.

4.External Interface Requirements: Defines the external interface components that may work with the software including the user interface, hardware interface, software interface, and communication interface.

5.Use Cases: Description of how the system will interacts with the user.

6.Nonfunctional Requirements: Defines system requirements, which include performance, security, safety and software quality attributes.

1.4. REFERANCES

- [1] “Software engineering: Chapter 3 SRS explained,” YouTube, https://youtu.be/FvxO8SLoua8?feature=shared (accessed Oct. 9, 2023).
- [2] “Software requirement specification (SRS) tutorial and example: Functional requirement document,” YouTube, https://youtu.be/M5DY3eTyhUA?feature=shared (accessed Oct. 9, 2023).
- [3] R. Bandakkanavar, “Software requirements specification document with example,” Krazytech, https://krazytech.com/projects/sample-software-requirements-specificationsrs-report-airline-database (accessed Oct. 9, 2023).
- [4] “External Interface Requirements in SRS,” T4Tutorials.com, https://t4tutorials.com/external-interface-requirements-srs/ (accessed Oct. 7, 2023).
- [5] K. Brush, “What is a use case?,” Software Quality, https://www.techtarget.com/searchsoftwarequality/definition/use-case (accessed Oct. 10, 2023).
- [6] Editor, “Non-functional requirements: Examples, types, how to approach,” AltexSoft, https://www.altexsoft.com/blog/non-functional-requirements/ (accessed Oct. 7, 2023).
- [7] “Non-functional requirements in software engineering,” GeeksforGeeks, https://www.geeksforgeeks.org/non-functional-requirements-in-software-engineering/ (accessed Oct. 7, 2023).

2. SYSTEM OVERVIEW

2.1. PRODUCT PERSPECTIVE

The **perspective** of the application is to provide customers with a budget-friendly experience. It **aims** to help users find activities within their specified budget in cities across Saudi Arabia. The application allows users to select a city, view the homepage with activities in the chosen city, and input their budget. A list of available activities within or below the specified budget is then displayed. If no budget is entered, the app considers it as an unlimited budget.

The application offers additional filters for activity selection, including rating, number of guests, and cancellation policy (which can be either strict or flexible). Once the user selects an activity, they can access its description, information, terms, and warnings.

The **essential services** provided by the application include:

1- Checking availability of the activity for the selected date, time, and number of guests.

2- Making payments through various methods such as PayPal, Apple Pay, or credit card.

3- Allowing users to log in or sign up to verify their login credentials.

After the user completes the activity booking process, the application confirms the reservation and updates the user's schedule. Once the booking and payment are confirmed, the app automatically directs the user to the bookings page, where they can view the confirmed reservation. The application also sends a confirmation email to the user. Additionally, the app provides the feature to canceling a reservation for an activity. [1] [2] [3]

2.2. PRODUCT FEATURES

1- City Selection and Activity Listings:
- Users can select a city in Saudi Arabia where they want to book an activity.
-The application displays a homepage featuring activities available in the selected city, including descriptions, information, conditions, and warnings.

2- Budget-Based Activity Recommendations:
- Users have the option to input their budget or leave it blank.
- If a budget is entered, the application generates a list of available activities within that budget.
- If no budget is entered, a default unlimited budget is assumed.

3- Activity Filters:
- Users can apply filters such as rating, number of guests, and cancellation policy (strict or flexible) to refine their activity search.
- The filters help users find activities that meet their specific requirements and preferences.

4- Activity Booking and Confirmation:
- Users can select an activity from the listings and proceed to book it or Add activities to their wishlist.
- The application checks the availability of the activity based on the preferred date, time, and number of guests.
- Users can make payment using various methods like PayPal, Apple Pay, or credit card.
- After confirming the booking and making the payment, the application provides a booking confirmation to the user.
- The program offers the feature of canceling a reservation for an activity, which includes refunding the payment to the user and sending an email notification regarding the cancellation.

5- Notifications and Reminders:
-The application sends notifications to users regarding booking confirmations, updates, or any changes related to their reservations.
- Users receive reminders for upcoming activities, ensuring they don't miss their scheduled bookings.
- Notifications can be delivered through in-app messages, email, or push notifications on mobile devices. [1] [3]

2.3. USER CLASSES AND CHARACTERISTICS

In terms of user categories for the "Twallam" software, users can be divided into the following categories:

- **Solo Travelers:** Individuals traveling alone or with friends seeking to establish and manage a trip budget while selecting activities that fit within their financial plan.

- **Families:** Families looking to organize budget friendly trips and discover activities suitable for all family members.

- **Budget Travelers:** Travelers aiming to maximize their travel experience within a tight budget, seeking cost effective options and guidance

- **Luxury Travelers:** Travelers with a higher budget who desire luxurious and unique travel experiences.

2.4. ASSUMPTION AND DEPENDENCIES

- **Budget Precision:** Users should provide accurate budget information for personalized, financially aligned activity recommendations.
- **Data Reliability:** The app depends on current, trustworthy data for precise activity suggestions, including pricing and availability in Saudi Arabian cities.
- **Transaction Security:** The software ensures financial transaction security, adhering to industry standard protocols for bookings and purchases.
- **Internet Requirement:** Users need an internet connection to access the app's features and receive real time updates activities.
- **Personal Data:** The software may request user information like phone numbers, email addresses, and payment card details for seamless bookings and transactions.
- **Location Services:** The application relies on functional GPS or location services on the user's device for accurate location based recommendations.
- **Payment Gateways:** Secure payment gateways for processing transactions securely when booking activities.
- **Database Management:** The database management system will track and manage user reservations. This includes immediate database updates for new reservations and cancellations. An instant notification system will inform users and hosts of any reservations change.

Understanding these assumptions and dependencies is crucial for the successful development, operation, and maintenance of the "Twallam" application .

2.5. OPERATION ENVIRONMENT

"Twallam" software is designed to provide travel activity suggestions based on users' destinations and budgets. It operates on various mobile devices and across multiple platforms (iOS, Android), integrates with external services like location services, focuses on users' desires, and works online. It places a high priority on data security and offers a comprehensive travel activity planning experience.

3. FUNCTIONAL REQUIREMENTS

3.1. CREATING AN ACCOUNT

- **Description:** The users has to create their own account if they do not have it already
- **Inputs:** The user must use their e-mails as the sole identifiers to register. Fill in e-mail, password, and re-enter the password
- **Outputs:** The account is created successfully
- **Action:** The system will ask for the user's e-mail and check if the user is already registered with the system. If yes, the system will notify the user that this e-mail is already used for an existing account, if not, then the account will be created after the users enter their names, and the system validates the entered authentication code.
- **Pre-conditions:** Stable internet connection, valid email and strong password
- **Post-conditions:** The user's e-mail will be stored in the accounts database

3.2. USER LOGIN

- **Description:** Since the user has created an account successfully, now the user must log in to the app using the account they created.
- **Inputs:** User must enter the e-mail and the password they provided in the creating account step.
- **Outputs:** User will be able to view and benefit from the app.
- **Action:** The system will ask the user to provide the e-mail and the password in the specified fields and check if they match the stored information If yes, user will be logged in , if not a message will appear that information entered is not correct.
- **Pre-conditions:** The user must have created an account previously in order for them to log in.
- **Post-conditions:** The user is logged into the account successfully.

3.3. VERIFYING USER ACCOUNT

- **Description:** In order to ensure authentication , user will be asked to verify their accounts using phone number.
- **Inputs:** Phone number.
- **Outputs:** The account will be verified successfully.
- **Action:** System will send OTP to the user's phone number and then matches the OTP message sent by the system with one entered by the user.
- **Pre-conditions:** A phone number that belongs to the user.
- **Post-conditions:** A field to enter the OTP sent to the number.

3.4.DETERMINE USER'S BUDGET AND DESTINATION

- **Description:** The system must allow the users to enter the current wanted budget and destination to show them the list of all the available activities in that destination .
- **Inputs:** User's budget, destination.
- **Outputs:** Available activities .
- **Action:** The system will ask the user to enter their own budget, in case there is no input entered from the user, the system will process as there is no budget selected so it will be considered as default budget "unlimited", otherwise the system will save the entered budget from the user to show the activities based on it.
- **Pre-conditions:** Budget and destination will be in their default values
- **Post-conditions:** The budget and destination has been determined.

3.5. CHANGING INPUTS ANY TIME IN CASE BUDGET CHANGED

- **Description:** The App will give the user the ability to change budget any time they want or rechoose activities.
- **Inputs:** Provide the new budget in the budget field.
- **Outputs:** Activities will change due to the changes in the budget.
- **Action:** The system will apply the new budget in the application.
- **Pre-conditions:** User have a different budget from previous experiences or default budget "unlimited" is chosen.
- **Post-conditions:** Budget will be changed successfully.

3.6. PROVIDE ACTIVITIES THAT ARE APPROPRIATE WITH THE USER'S BUDGET

- **Description:** The main goal of the App is to provide activities based on given budget ,so The system must provide a search feature allows a user to hunt among these various appropriate activities that has given based on this given budget
- **Inputs:** Budget and the desired type of entertainment "restaurants, games, ...etc"
- **Outputs:** List of activities based on given inputs.
- **Action:** The system will filter and sort activities depending on the budget and desired activities.
- **Pre-conditions:** User budget is determined
- **Post-conditions:** Activities are shown and suggested by the system successfully.

3.7.CHOOSING ACTIVITIES

- **Description:** After the system recommends and show the user the available activities, the user now must choose the perfect and desired activities .
- **Inputs:** The desired activity .
- **Outputs:** Activity details.
- **Action:** Once the user choose any activity, it will show them the activity details such as the main event of this activity, the times that this events may occur in and so on.
- **Pre-conditions:** The destination and budget are determined.
- **Post-conditions:** The activity’s details are shown .

3.8. BOOKING

- **Description:** Once the wanted activity is chosen, the user now must decide in witch day, time and how many members will be in this activity .
- **Inputs:** The selected time, day and number of members.
- **Outputs:** - A booking confirmation e-mail - The activities will be added to the user schedule.
- **Action:** The system will provide to the user several times for this activity, which the user must choose one of these times besides the date and the number of members participating in the activity
- **Pre-conditions:** The user must select an activity .
- **Post-conditions:** The booking has been completed successfully

3.9. BOOKING CANCELLATION

- **Description:** In case the user wants to cancel the booking under any circumstances, the system will allow that as well as the host.
- **Inputs:** The activity booking ticket
- **Outputs:** - A booking cancellation e-mail - A refund payment to the user
- **Action:** The users will send a request to the system to cancel their booking, once the system accepts their request, the booking will be cancelled and the payment will be refunded to the user
- **Pre-conditions:** The user must have already a booking ticket for a specific activity.
- **Post-conditions:** Booking cancellation will be confirmed successfully .

3.10.PAYMENT PROCESSING

- **Description:** After choosing the desired activities , payment must be done in order for activities to be booked.
- **Inputs:** Payment method, card information.
- **Outputs:** User will receive a message that payment is confirmed.
- **Action:** The system will process payment , once payment is completed successfully booking well be placed.
- **Pre-conditions:** User payment details.
- **Post-conditions:** Payment will be processed successfully.

3.11. BOOKING VERIFICATION EMAIL TO THE USER

- **Description:** Software must send an email to inform the user that booking succeeded also to notify user that they have a booking in a certain day and time.
- **Inputs:** User email.
- **Outputs:** Verification mails will be sent and reminders of bookings.
- **Action:** System will schedule emails in order for them to be sent each day the user has a booking as well as the booking verification email.
- **Pre-conditions:** User has paid and completed booking. .
- **Post-conditions:** Emails will be sent.

4. EXTERNAL INTERFACE REQUIREMENTS

4.1. USER INTERFACE

The user interface of "Twallam" has been designed with user-friendliness in mind, ensuring an intuitive experience for all users. It includes the following components:

- **Input Interface:** Users can input their distination budget preferences, including currency, maximum spending limits.

- **Activity Suggestions:** Once the distination budget is entered, the software provides activity suggestions tailored to the user's financial constraints and preferences.

- **Explore Mode:** Users can explore recommended activities, view details, and choose the ones that interest them.

- **Save and Plan:** Users can save selected activities and plan their trips accordingly.

- **Budget Tracker:** An interface for tracking expenses and comparing them with the initial budget. [4]

4.2. HARDWARE INTERFACE

"Twallam" is designed to be compatible with standard hardware configurations. It requires the following hardware components:

- **Personal Computers:** The software can be run on Windows, macOS, and Linux-based systems.

- **Smartphones and Tablets:** A mobile version of the software is available for iOS and Android devices.

- **Internet Connection:** An internet connection is required to access and update the activity database.[4]

4.3. SOFTWARE INTERFACE

Our software interacts with various software components to provide a seamless user experience:

- **Activity Database:** The software interfaces with a host of the activity database to retrieve and update activity information.

- **Currency Conversion:** It connects to a currency conversion service to display budgets in the user's preferred currency.

- **Mapping and Navigation Services:** For location-based activities, the software interfaces with mapping and navigation services to provide directions.

- **User Account Management:** If users create accounts, the software interfaces with a user management system for authentication and data storage.[4]

4.4. COMMUNICATION INTERFACE

To ensure smooth operation and user data security, "Traveling Activities" employs communication interfaces as follows:

- **Secure Sockets Layer (SSL):** All communication between the user's device and our servers is encrypted using SSL to protect sensitive data.

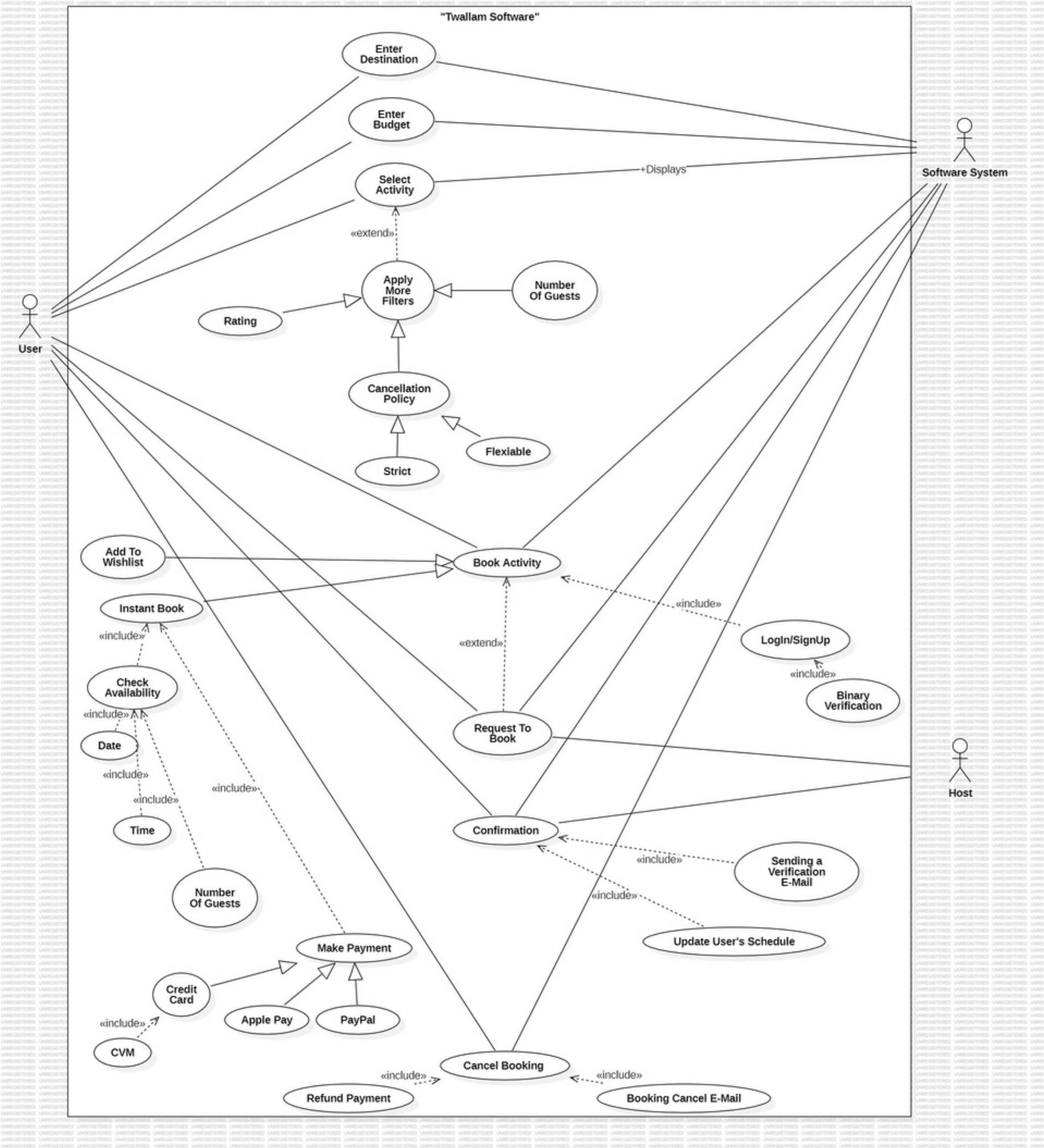
- **The use of Secure Sockets Layer (SSL):** Ensures that all communication between the user's device and our servers is encrypted and secure, providing an additional layer of protection to guarantee that the database of the host will be safe in our system. [4]

5.REQUIREMENTS ENGINEERING

5.1. REQUIREMENTS ELICITATION AND ANALYSIS

The Unified Model Language method is used to elicit and analyze requirements. The teams' members are the software's stakeholders. The requirements have been determined and relevant to the software needs as a result of the group interviews and discussion that were conducted. These requirements are analyzed using a **use case**, which gives developers a reference point for their work.

Use case: [5]



5.REQUIREMENTS ENGINEERING

5.2. REQUIREMENTS VALIDATION

Using a **Requirements Review** method team members conduct a systematic, deep examination of the requirements to spot possible issues, generate a discussion about them, and come up with the best solution to it.

6. NON-FUNCTIONAL REQUIREMENTS

6.1. PERFORMANCE

- Description: The app should provide activity recommendations based on budget and destination within an acceptable response time to ensure a smooth user experience. [6][7]

6.2. SECURITY

- The app should handle user budget and destination information securely, as well as the payment information ,ensuring that it is not accessible to unauthorized individuals or third parties. [6][7]

6.3. SAFETY

- The app should consider safety factors when generating activity recommendations, taking into account any potential risks or hazards associated with the suggested activities. [6][7]

6.4. SOFTWARE QUALITY ATTRIBUTES

- The app should have clear and user-friendly interface, making it easy for users to input their budget and understand the activity suggestions. [6][7]

Contributions

Introduction	Kadi AL-Ali
System Overview	Hagar AL-Amirini (Product Perspective and Features) Huda AL-Mutairi
Functional Requirements	Dana AL-Nahel Shrooq AL-Qaied
External Interface Requirements	Jumanah AL-Matrood
Requirements Engineering and Documentation	Dana AL-Duayji
Non-Functional Requirements	Emtenan AL-Fozan