



Project Assignment

Project Phase 0

ITCS371 Introduction to Software Engineering

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Badminton Court Booking Application

Description of the project

Customer wants a mobile application used to book a badminton court.

Description of the customer

Staff and administrator's part

An administrator or staff can manage the booking of a badminton court status, can update the status of the court such as some courts being unavailable, because it is renovated, fixed, or broken. Moreover, an administrator or staff can update customer status such as a customer that has inappropriate behavior, and then staff can change the status of that customer not able to login to the system anymore.

User part

Users can see an available badminton court, and they can book the date and time. Users who are registering as a member of the application must enter their information such as name, address, and credit card information if users use a credit card, or bank information if users use a bank transfer. After registering as a member, users will be able to see all available badminton courts. They can select a court according to the location that is close to them. Then, users can select the court by choosing the starting and ending times in hour form. Users can also cancel the court that they have booked. After canceling, users will get their money back if they have not started playing on the court. Moreover, users can book equipment for rent in advance before going to the court, such as a racket or shuttlecock. If the court is not available, users should be able to send a request to book through the system. After playing on the court, users can give a review, assigning stars in the range of 1 to 5, along with comments about their experiences playing on the court. When users see available courts, they can use the search function to search according to the following criteria: names of the courts by entering some of the names. Furthermore, users can search for courts according to the distance from them, specifying a distance range, such as 1 km from their houses. Users can search for a court with a specific price, such as 100 Baht per hour or 200 Baht per hour. Additionally, users can view other comments and the average star ratings from other users, enabling them to read about their experiences while viewing the court information, helping them consider a high rating when booking a court. After registering, users must log in using a strong password.

Description of the business

Badminton court consists of information such as place, office hours, rent price, and booking price per an hour for a particular court. The application must have login features before users use the application. The application can estimate the number of users, meaning that it should handle concurrent users, so users can use it at the same time at 1000 accounts. The system must treat security as an important aspect of the application, so all user information must be stored securely by using some encryption techniques when it is sent to the application. It must support more than Thai people, so it must have multiple languages including Thai, English and Chinese languages. Response of the application must be fast and pleasure to use, so the search result needs to be displayed in less than 2 seconds which is the maximum time for customer to wait for the result. The application should be a good-looking UI and UX, so it should be considered ease of use. The system must have the reservation of the court. Moreover, it should know when the court is available, and send a notification to users to let them know whether they want to book or not, and then show the lists of the courts that have characters within the name when users use the search function. The system should show the court that is in the range of users' distance. For users' convenience, the system must be connected to the banks to make a transfer or credit card transaction. And it must integrate the location system in a mobile phone, so it can know the location of users, and can recommend the court that is close to them.

Functional requirements

- R1.** Users can view the list of available badminton courts.
- R2.** Users are able to book a badminton court.
- R3.** Staff and administrators have the capability to modify court information and switch between available and reserved statuses for badminton courts.
- R4.** Users must register to use the application.
- R5.** Users can see which badminton courts are available for booking.
- R6.** Users can select a court based on its nearest location.
- R7.** Users can choose the court and booking time.
- R8.** Users can view the list of reserved courts.
- R9.** Users can cancel reserved courts and receive refunds if they haven't started playing.
- R10.** Users can rent equipment.
- R11.** Users can review courts using a 1 to 5-star rating system and leave comments.
- R12.** The system features a search box for users to find court names.
- R13.** The system displays the distance between users and courts in the list.
- R14.** Users can search for courts based on specific prices.
- R15.** Users can view court reviews when viewing court information.
- R16.** Users must log in to utilize the application.
- R17.** Staff or administrators can update each user's status to disable or enable it.
- R18.** Users can choose between bank transfer or credit card for booking payments.

R19. If a court is unavailable, the system provides a request button for users.

R20. If a court becomes available, the system notifies users who made requests.

Non-functional requirements

- R1.** The system must be connected to the banking system to make transfers or credit card transactions.
- R2.** The application should be able to handle concurrent users.
- R3.** The application must support up to 1,000 accounts accessing the system simultaneously.
- R4.** The system must treat security as an important aspect of the application.
- R5.** The user's information must be stored securely by using some encryption techniques when it is sent to the application.
- R6.** The application must support more than Thai people.
- R7.** The application must have multiple languages including Thai, English and Chinese languages.
- R8.** The response time for displaying search results should be less than 2 seconds, ensuring a fast and pleasant user experience.
- R9.** The application should have a good-looking UI and UX.
- R10.** The application must be easy to use.
- R11.** The system must integrate the location system into a mobile phone.
- R12.** The system must be able to know the location of users.

Identifying Actors

According to the functional and non-functional requirements, there are four main actors. The table below elaborates on the actors and their related requirements, both functional and non-functional.

Actor	Functional requirements	Non-Functional requirements
User	R1, R2, R4, R5, R6, R7, R8, R9, R10, R11, R14, R15, R16, R18	-
Staff	R3, R17	-
Banking system	R18	R1
Mobile phone	-	R11

- Users will interact with the application and can reserve courts through it.
- Staff will administer the availability of the badminton court.
- A banking system is an external system that allows the user to complete the payment process.
- A mobile phone is responsible for exchanging the user's location with the application.