SCAVENGER HUNT GAME USING BLE BEACON

Project Members

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Introduction

- In this project, we developed a mobile Android application which is named as the "Scavenger Hunt Game".
- The application is formed with the BLE Beacon devices and the mobile application.

Problem

- People have daily responsibilities. Even with the existence of these responsibilities, people can feel bored and tired.

Problem

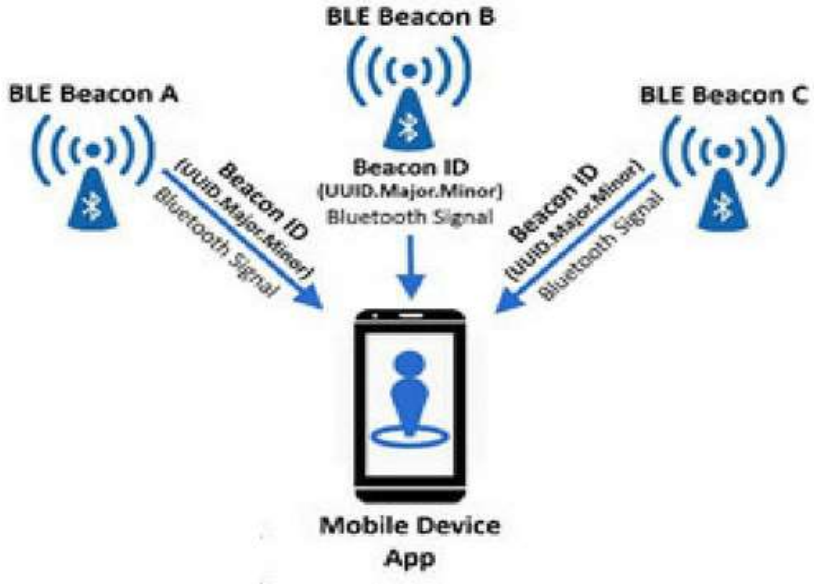
- Competition is also important for some people. These people want to compete with others.

Problem

- There are differences between people. People do not have same characteristics.

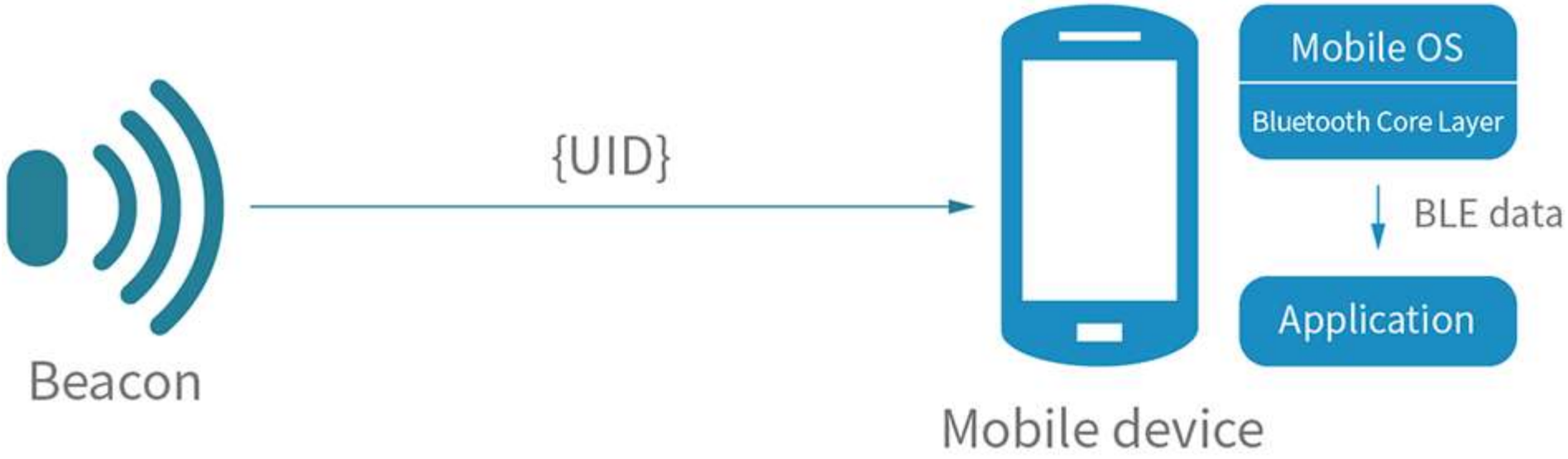
Solution

- In this project, we are using Gamification, BLE Beacon and Android technologies together.



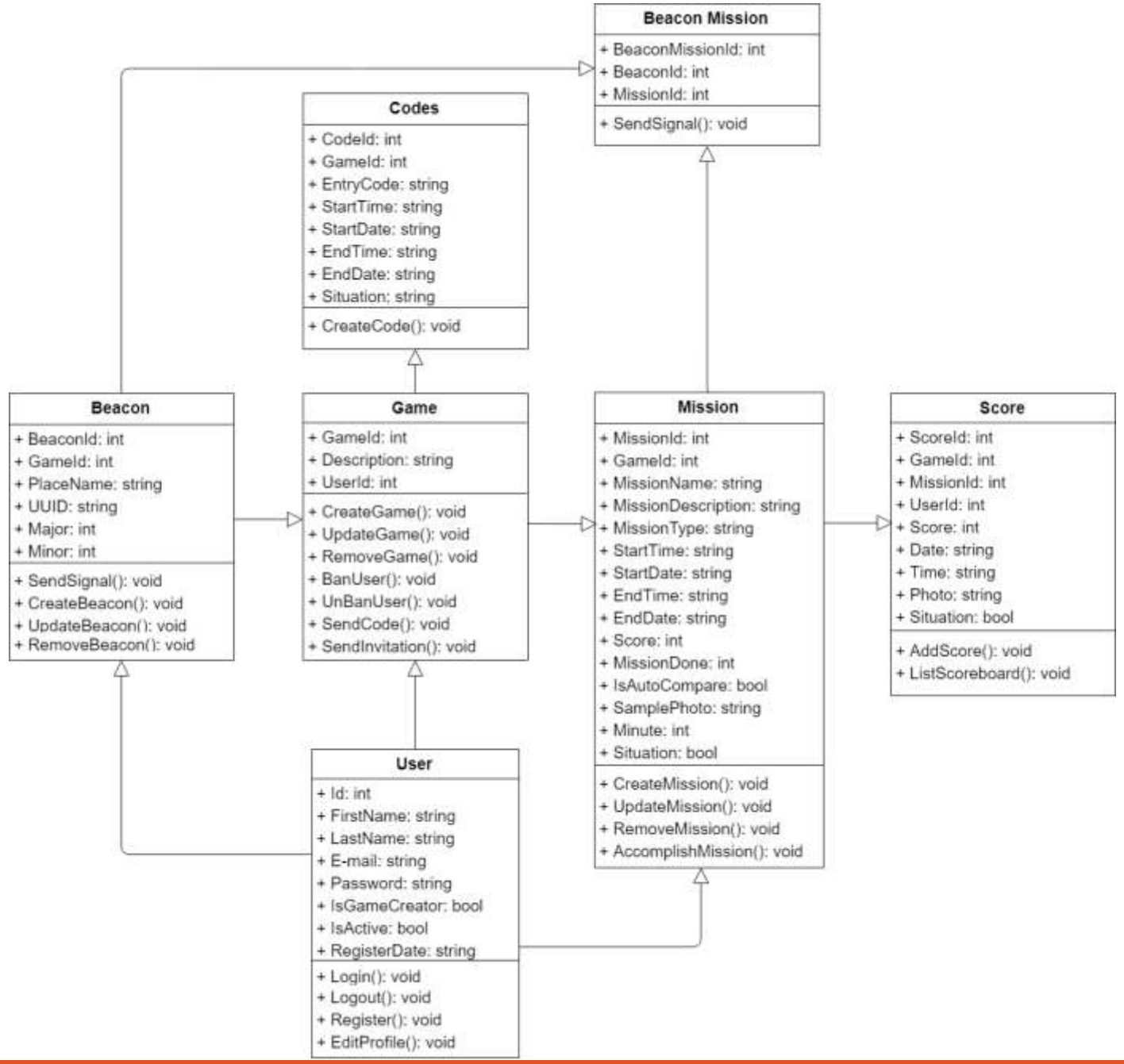
Solution

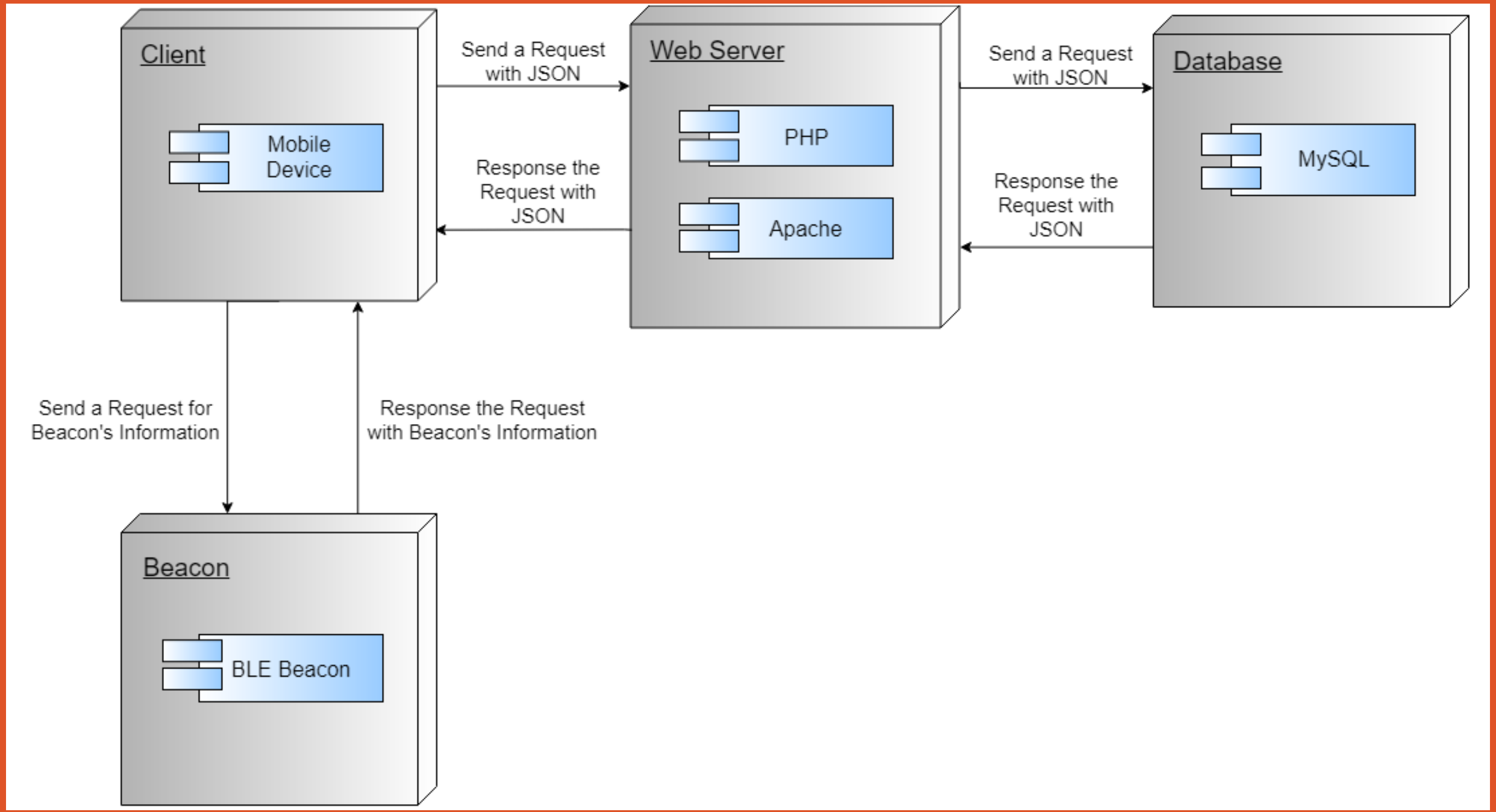
- BLE Beacon is a technology that provides location information using low energy Bluetooth signals.

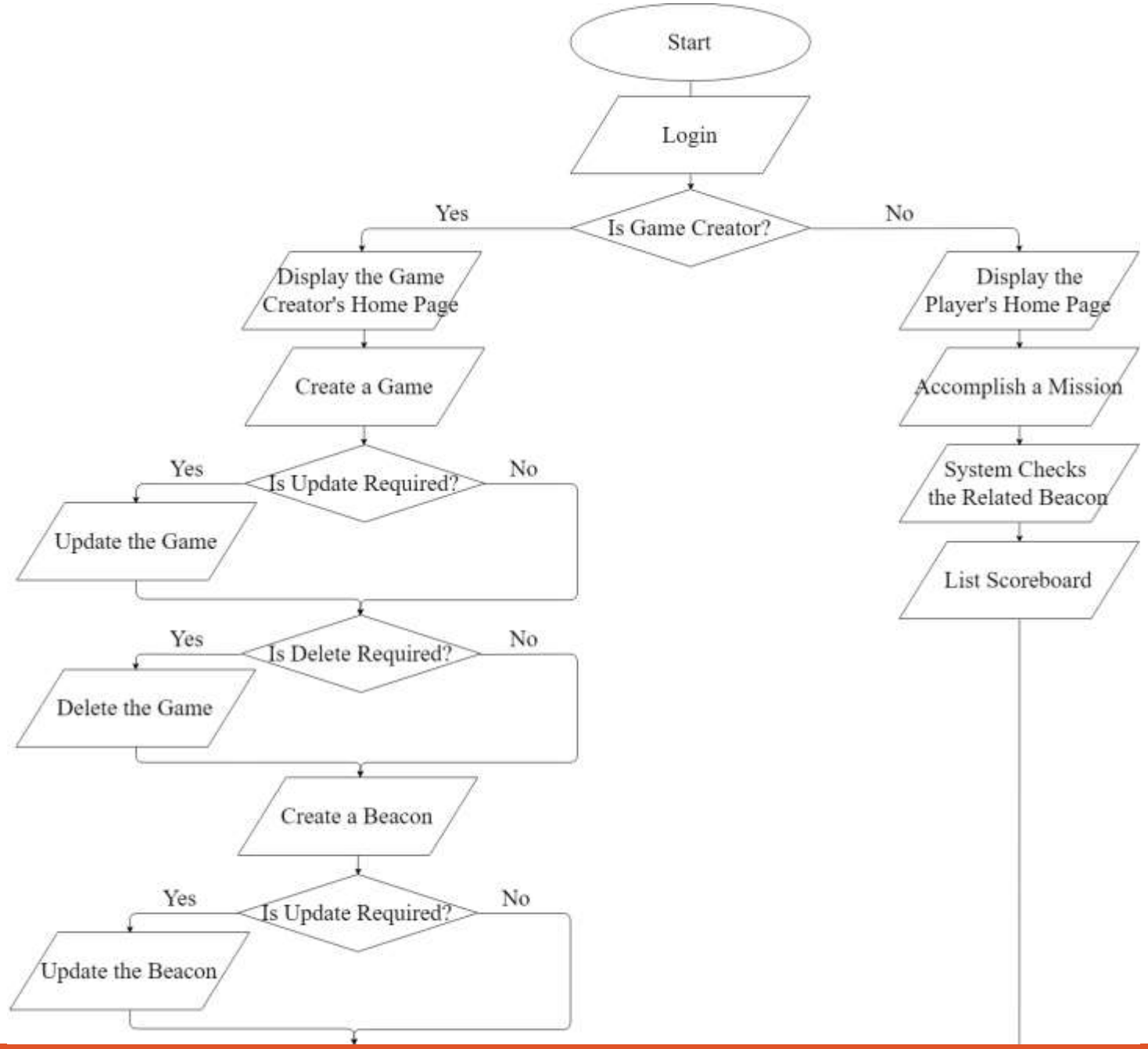


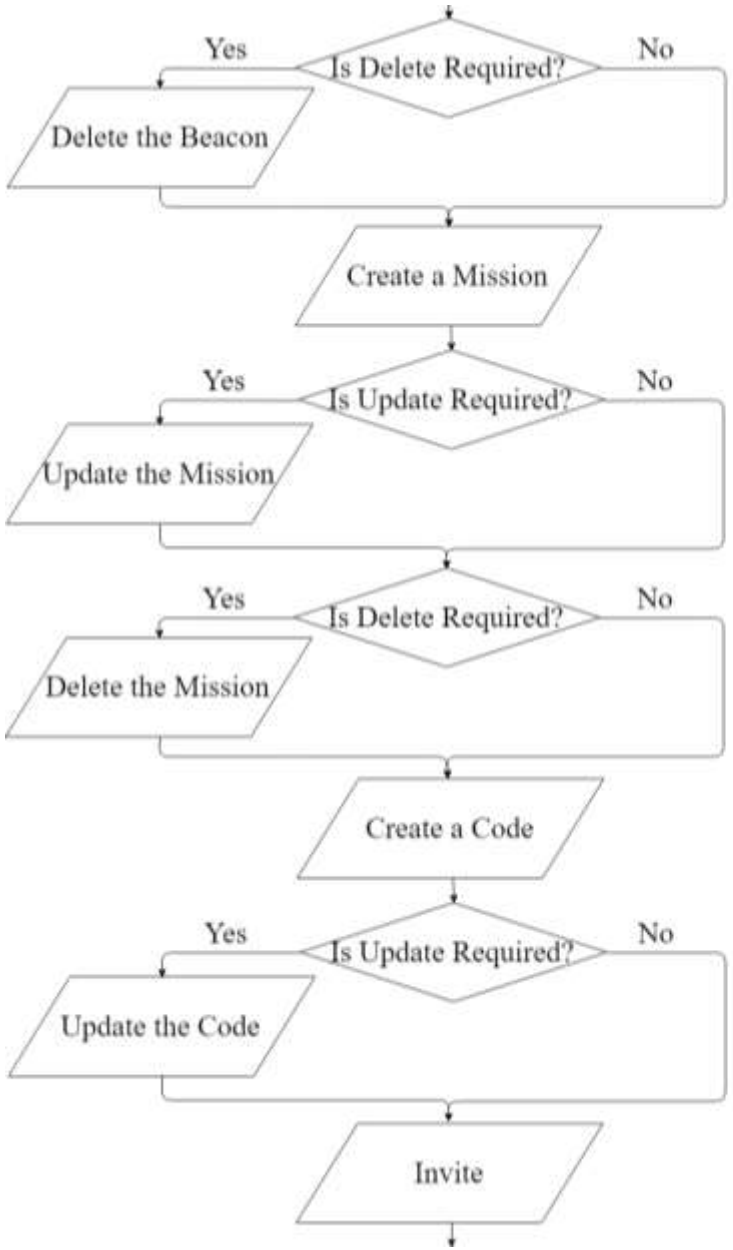
Solution

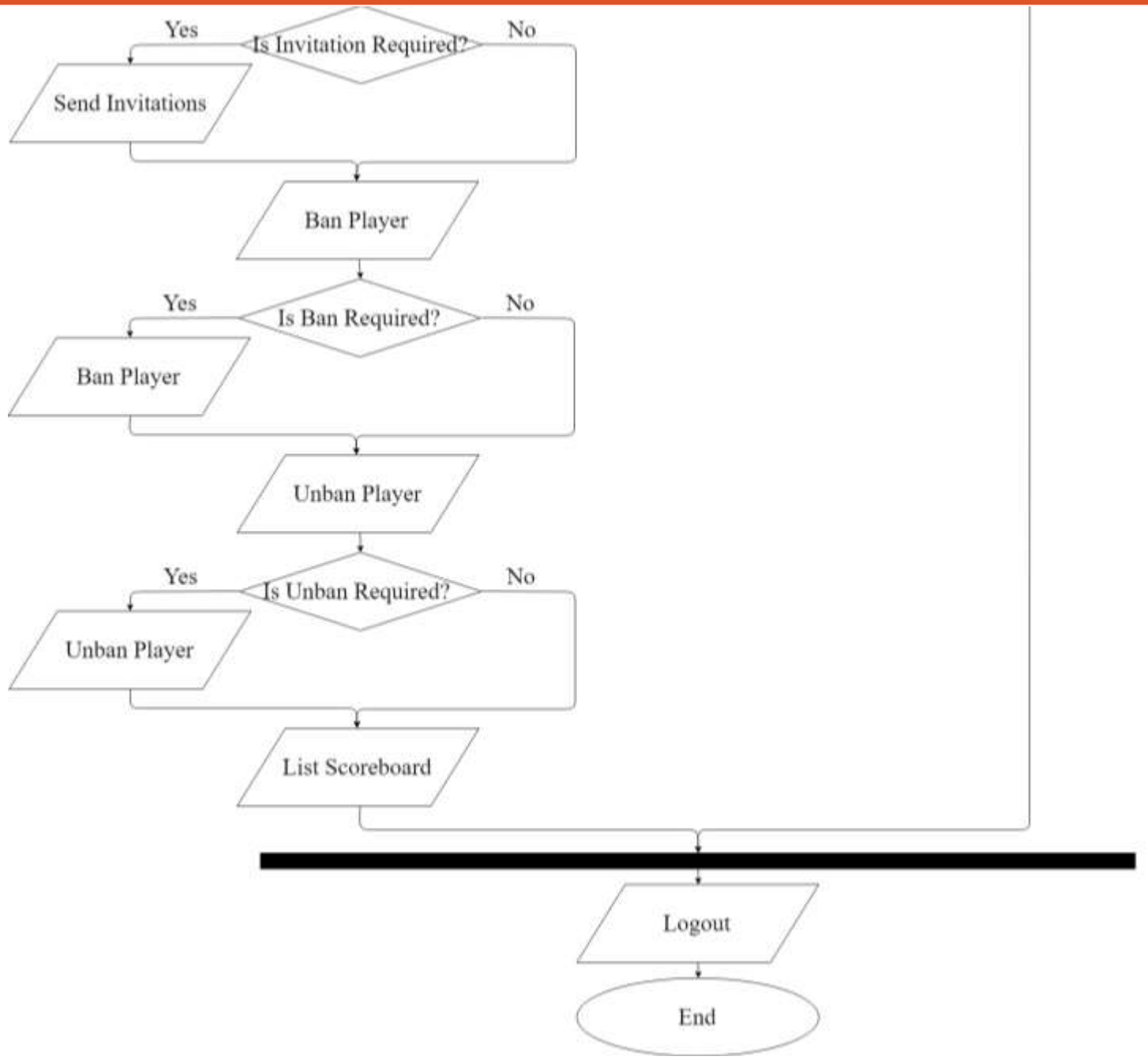
- Gamification is the process of adding game elements to something you want in order to change the tendencies and behaviors of people.
- This application is developed for the devices with Android operating system version 7.0 and above.
- We used MySQL as database phpMyAdmin for managing our database.


Beacon Mission
+ BeaconMissionId: int
+ BeaconId: int
+ MissionId: int
+ SendSignal(): void
Codes
+ CodeId: int
+ GameId: int
+ EntryCode: string
+ StartTime: string
+ StartDate: string
+ EndTime: string
+ EndDate: string
+ Situation; string
+ CreateCode(): void
Beacon
+ BeaconId: int
+ GameId: int
+ PlaceName: string
+ UUID: string
+ Major: int
+ Minor: int
+ SendSignal(): void
+ CreateBeacon(): void
+ UpdateBeacon(): void
+ RemoveBeacon(): void
Game
+ GameId: int
+ Description: string
+ UserId: int
+ CreateGame(): void
+ UpdateGame(): void
+ RemoveGame(): void
+ BanUser(): void
+ UnBanUser(): void
+ SendCode(): void
+ SendInvitation(): void
Mission
+ MissionId: int
+ GameId: int
+ MissionName: string
+ MissionDescription: string
+ MissionType: string
+ StartTime: string
+ StartDate: string
+ EndTime: string
+ EndDate: string
+ Score: int
+ MissionDone: int
+ IsAutoCompare: bool
+ SamplePhoto: string
+ Minute: int
+ Situation: bool
+ CreateMission(): void
+ UpdateMission(): void
+ RemoveMission(): void
+ AccomplishMission(): void
Score
+ ScoreId: int
+ GameId: int
+ MissionId: int
+ UserId: int
+ Score: int
+ Date: string
+ Time: string
+ Photo: string
+ Situation: bool
+ AddScore(): void
+ ListScoreboard(): void
User
+ Id: int
+ FirstName: string
+ LastName: string
+ E-mail: string
+ Password: string
+ IsGameCreator: bool
+ IsActive: bool
+ RegisterDate: string
+ Login(): void
+ Logout(): void
+ Register(): void
+ EditProfile(): void


Client
Mobile Device
Send a Request with JSON
Response the Request with JSON
Web Server
PHP
Apache
Send a Request with JSON
Response the Request with JSON
Database
MySQL
Send a Request for Beacon's Information
Response the Request with Beacon's Information
Beacon
BLE Beacon


Start
Login
Is Game Creator?
Yes
No
Display the Game Creator's Home Page
Create a Game
Is Update Required?
Yes
No
Update the Game
Is Delete Required?
Yes
No
Delete the Game
Create a Beacon
Is Update Required?
Yes
No
Update the Beacon
Display the Player's Home Page
Accomplish a Mission
System Checks the Related Beacon
List Scoreboard


Yes
Is Delete Required?
No
Delete the Beacon
Create a Mission
Yes
Is Update Required?
No
Update the Mission
Yes
Is Delete Required?
No
Delete the Mission
Create a Code
Yes
Is Update Required?
No
Update the Code
Invite


Yes
Is Invitation Required?
No
Send Invitations
Ban Player
Yes
Is Ban Required?
No
Ban Player
Unban Player
Yes
Is Unban Required?
No
Unban Player
List Scoreboard
Logout
End

Test Results

Priority	Number of TCs	Executed	Passed
H	55	55	55
M	14	14	14
L	-	-	-
Total	69	69	69

Conclusion

- We aimed to create an enjoyable and competitive application.
- We studied about BLE Beacon, Gamification and Android technologies to generate our project.

Thank you for listening!