COE4112505
Software Engineering
Project Part 4 (Final Report)
Group 2
Project Title: University Map Application

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1. Abstract:

Medipol MAP Application is an advanced mobile tool designed to improve navigation and academic management at Medipol University. Aimed at helping new students and faculty, this program addresses the challenges of finding classes and managing class schedules. Key features include real-time classroom locations, comprehensive class schedules and classroom availability, all accessible through an intuitive interface. This user-friendly application appeals to a diverse campus population, enriching both academic and social experiences. This is a testament to Medipol University's commitment to technological innovations in education. The app's flexible design allows for future improvements, potentially integrating advanced technologies for a more immersive campus experience. Medipol MAP Application plays an important role in developing an efficient and engaging educational environment by simplifying campus navigation and improving academic organization.

2. Introduction:

Every academic year at Medipol University, finding their way around the large campus and finding the right classes on time can be a significant challenge, especially for new first-year students. This situation makes the adaptation process of students to university difficult and can sometimes negatively affect their social and academic performance. Additionally, keeping up with course schedules and finding available classrooms during exam periods have become frequently encountered difficulties for students.

In order to find solutions to these problems, Medipol MAP Application, a mobile application based on the school mapping system, was developed. This system is designed to facilitate students' daily campus life, smooth transitions between courses and provide a more comfortable educational experience. The application helps students find classrooms quickly, allowing them to use their time more efficiently and facilitating the adaptation process of new students. Students will no longer be limited to the library alone to study and organize activities; They can easily find suitable places.

Medipol MAP Application allows users to quickly access the location of the class they are looking for. Additionally, the app provides access to available syllabuses for each grade. This feature gives students instant information

about the availability and availability of classes. The app's scalable design allows future expansions to accommodate a variety of uses.

Medipol MAP Application, which targets not only new students but all students and faculty members, is designed to appeal to a wide range of users with its easy-to-use interface. This comprehensive approach aims to meet the needs of everyone in our school.

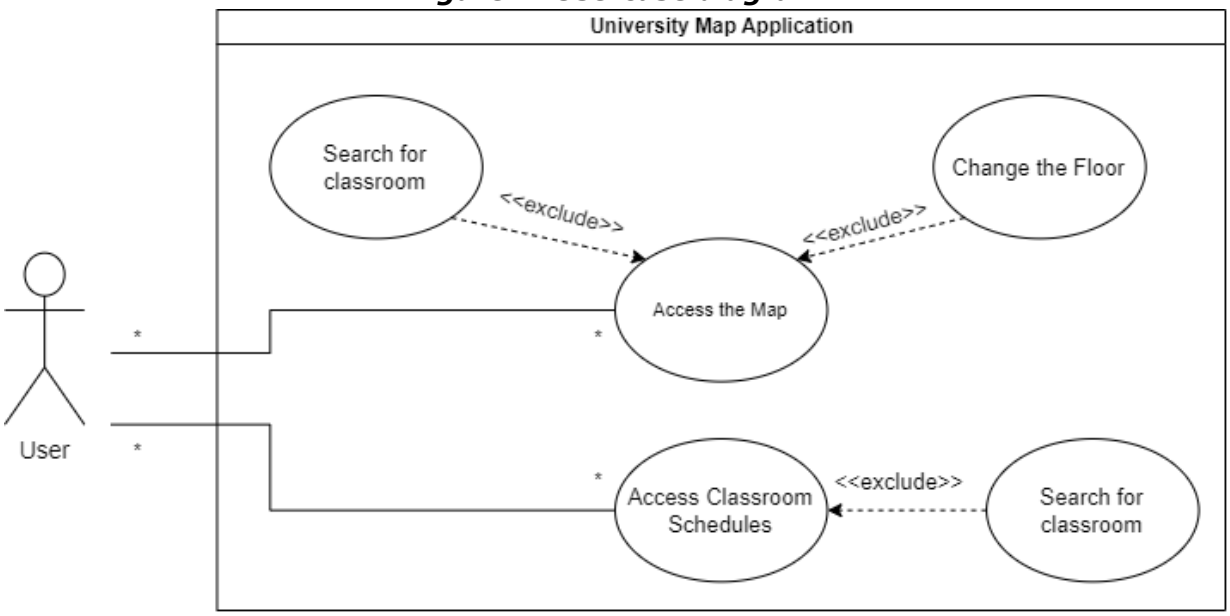
Medipol MAP Application is more than an educational project, it is a social initiative that makes campus life easier. It allows students and faculty members to focus more on educational and social activities by streamlining their daily routines. This innovation demonstrates Medipol University's commitment to advancing education and improving campus life. The app increases social interaction on campus by encouraging participation in campus events, seminars and meetings. These features make the Medipol MAP Application more than just a navigation tool and an integrated part of campus life.

3. **UML Diagrams**:

3. 1. Use-case diagrams and descriptions

3.1.1. Use-case Diagram

Figure 1: Use-case diagram



3.1.2. Use-case Descriptions

Table 1: Use-case description 1

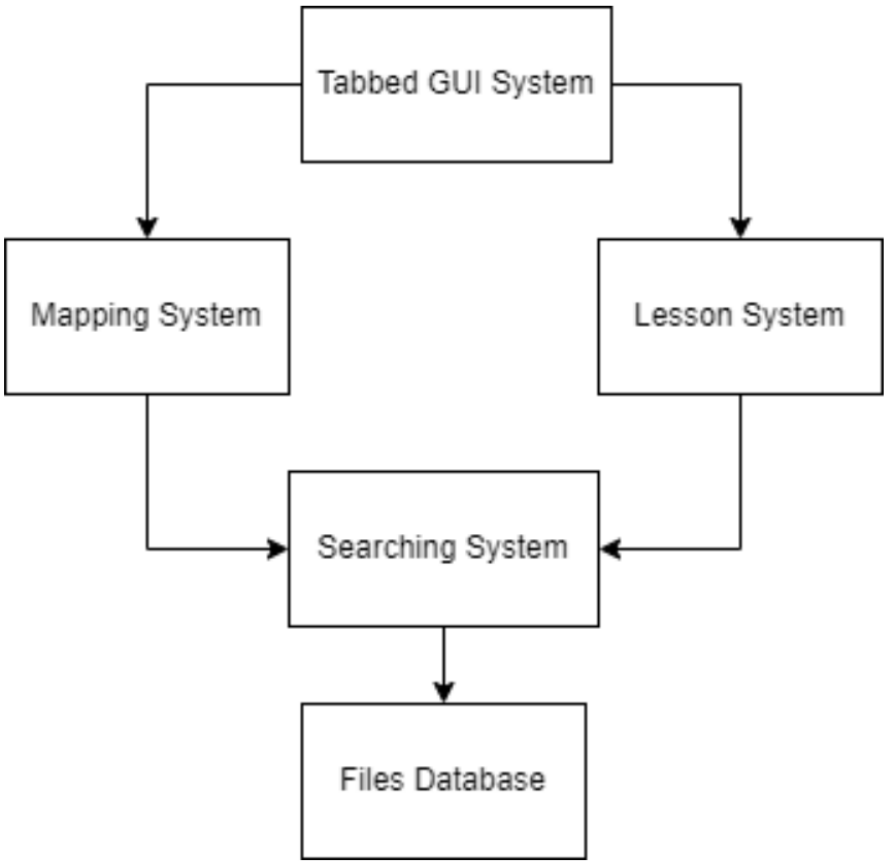
Use Case Name: Accessing to the Map
Primary Actor: User
Stakeholders and Interests: User
Brief Description: University Map Application has two main tabs: Map Page and Schedule Page. This use case describes the scenario where the user wants to display the map.
Trigger: User opens the app and clicks on the Map tab.
Relationships: Association: User Include: Extend: Generalization:
Normal Flow of Events: 1. User opens the Map Page 2. Map is displayed on the screen 3. User searches for a classroom on search tab 4. User changes the floor
Alternate/Exceptional Flows: 3a. The user does not search for classrooms and just examines the map. 3b. Classroom is not found, nothing changes. 4a. The user does not change the floor and just examines the map.

Table 2: Use-case description 2

Use Case Name: Accessing to the Schedule List of a Classroom
Primary Actor: User
Stakeholders and Interests: User
Brief Description: University Map Application has two main tabs: Map Page and Schedule Page. This use case describes the scenario where the user wants to check the schedule of a classroom.
Trigger: User opens the app and clicks on the Lesson Page tab.
Relationships: Association: User Include: Extend: Generalization:
Normal Flow of Events: 1. User opens the lessons page. 2. User searches for a classroom 3. Classroom's schedule is displayed on the screen
Alternate/Exceptional Flows: 2a. The classroom is not found, nothing changes.

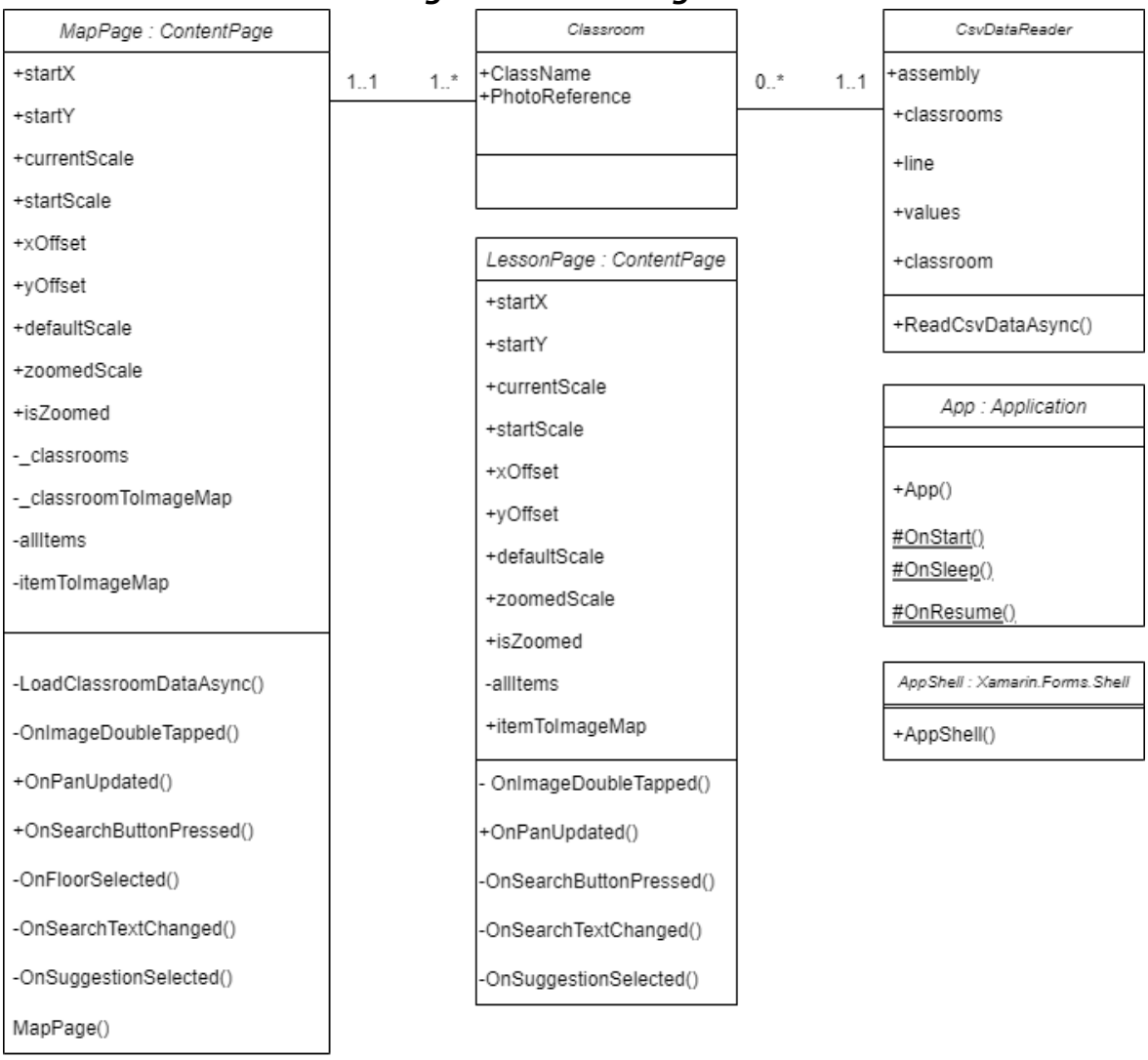
3.2. Context Diagram

Figure 2: Context Diagram



3.3. Class Diagram

Figure 3: Class Diagram



3.4. Class Descriptions:

Table 3: Class Descriptions

Class name: App **Description:** Class for the app itself.	
Method/Attribute	**Description**
+App()	
#OnStart()	Method used when system is booting up.
#OnSleep()	Method used when the system is on sleep.
#OnResume()	Method used when the system is running.

Class name: Appshell	
Method/Attribute	**Description**
+Appshell()	Appshell consturctorı

Class name: CsvDataReader **Description:** A class for reading csv data.	
Method/Attribute	**Description**
+assembly	Sends Csv file info
+classrooms	Calls List
+line	Reads lines
+values	Determines column value
+classroom	Calls Classroom class.
+ReadCsvDataAsync()	Loads the data

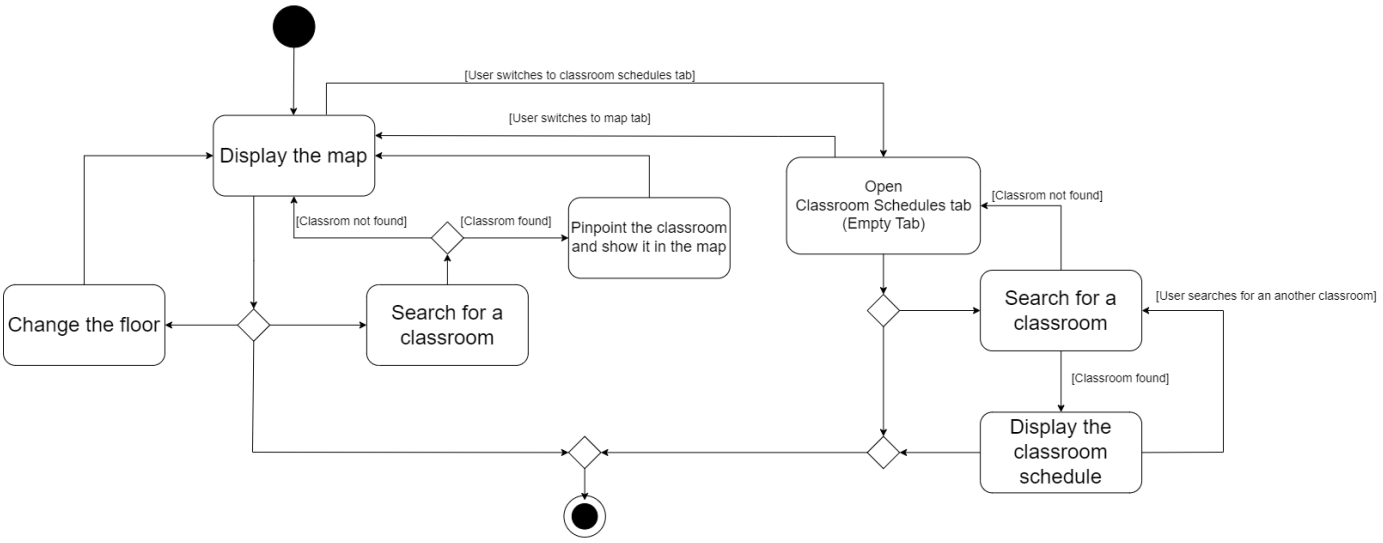
Class name: MapPage **Description:** Class used for implementation of map tab.	
Method/Attribute	**Description**
+startX	Starting position x
+startY	Starting position y
+currentScale	Sistemde anlık scale ölçeğiş
+startScale	Başlangıç sclae ölçeği
+xOffset	Location setting
+yOffset	Location setting
+defaultScale	Shows how much zoomed in default
+zoomedScale	Shows how much we zoomed
+isZoomed	Shows isit zoomed or not
-_classrooms	Calls Csv class names
-_classroomToImageMap	Calls Csv files's photos
-allItems	List that contain all class names
-itemToImageMap	Used as Dictionary database
-LoadClassroomDataAsync()	Loads the Cvs data
+MapPage()	Map page constructor and Loads the system,
-OnImageDoubleTapped()	Zoom in to the image when double tapped.
+OnPanUpdated()	Makes photo closer then arrages the loaction of photo
+OnSearchButtonPressed()	Send the word that written on search engine.
-OnFloorSelected()	When floor selected in picker Item sends the system
-OnSearchTextChanged()	Shows Suggestion list
-OnSuggestionSelected()	Makes photo syllabus that named suggestion

Class name: LessonPage **Description:** Class used for implementation of lesson schedules tab.	
Method/Attribute	**Description**
+startX	Starting position x
+startY	Starting position y
+currentScale	Momentary scale
+startScale	Initial Scale
+xOffset	Location setting
+yOffset	Location setting
+defaultScale	Controls that how much zoom in default
+zoomedScale	Shows that how much zoom we make
+isZoomed	Controls that is it zoomed or not
-allItems	List that contain all class names
+itemToImageMap	Used as Dictionary database
-OnImageDoubleTapped()	Sends event to zoom in to image
+OnPanUpdated()	Makes photo closer then arrages the loaction of photo
-OnSearchButtonPressed()	Send the word that written on search engine.
-OnSearchTextChanged()	Shows Suggestion list
-OnSuggestionSelected()	Makes syllabus that in the suggestion name

Class name: Classroom **Description:** Class used for implementation of classrooms.	
Method/Attribute	**Description**
+ClassName	Used for getting class's name from Cvs data
+PhotoReference	Used for selecting photos's name from Cvs data

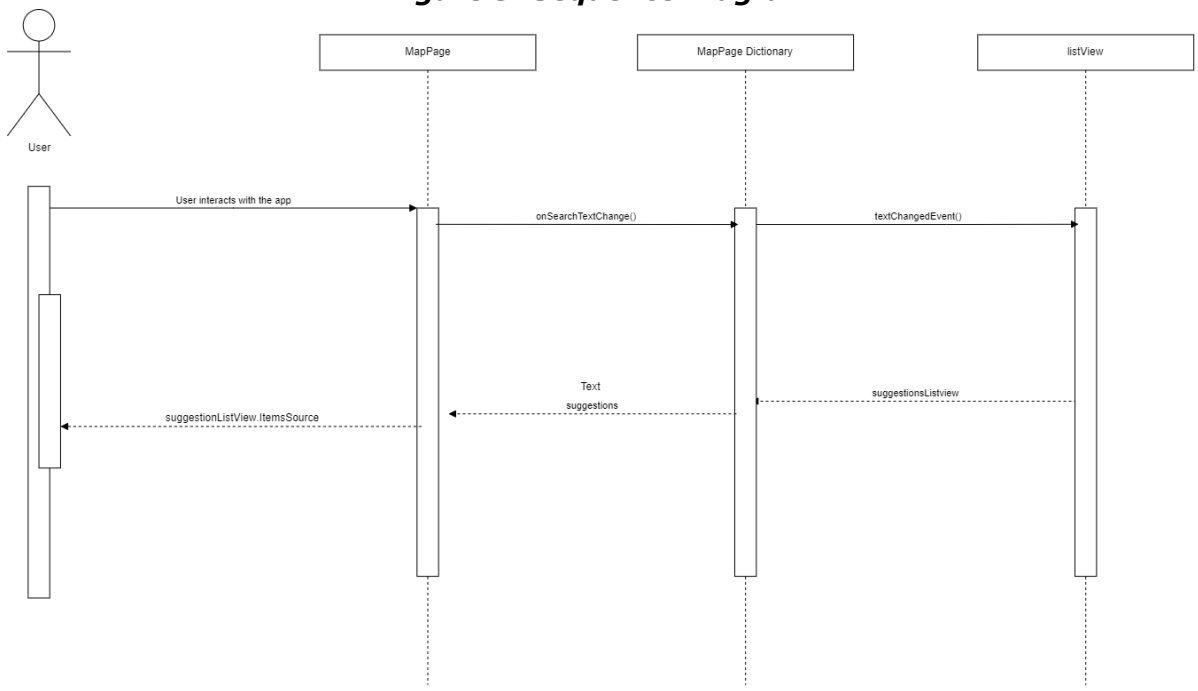
3.5. Activity Diagram

Figure 4: Activity Diagram



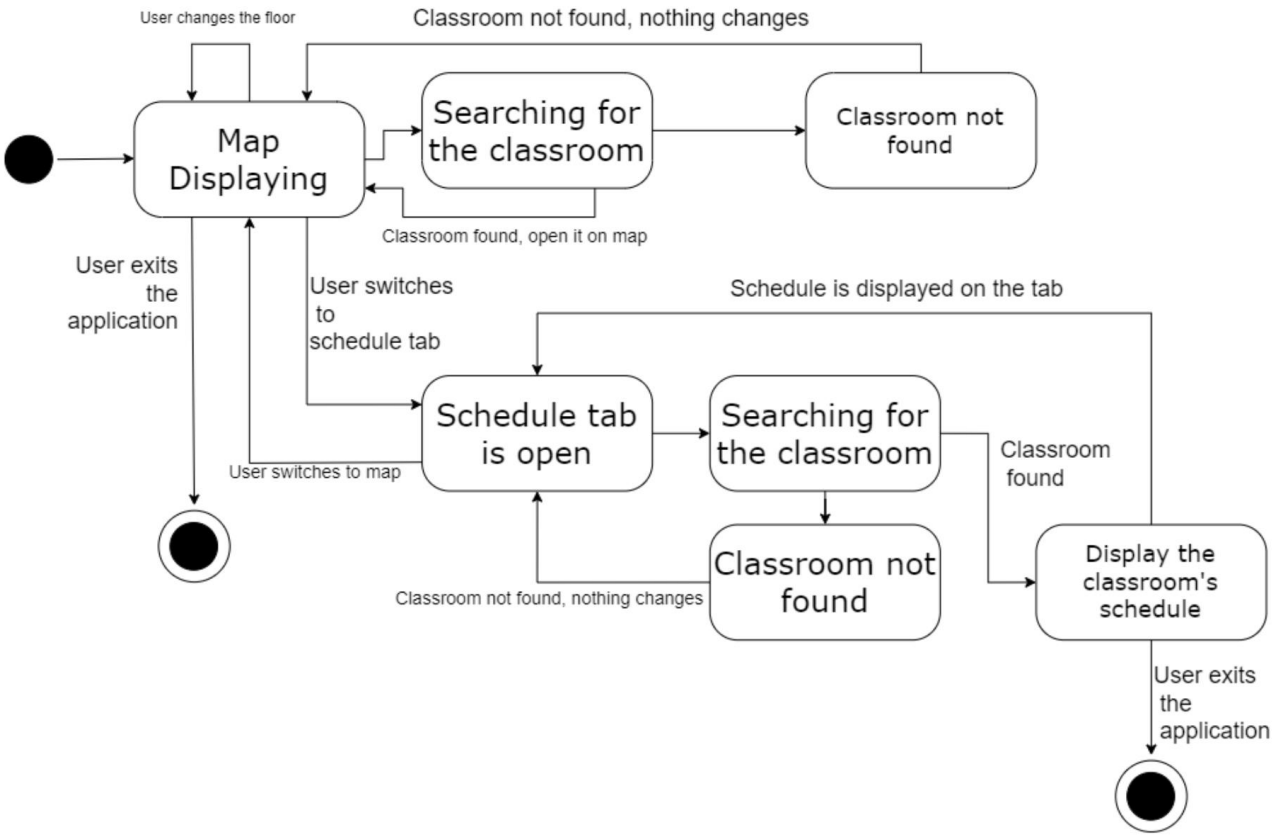
3.6. Sequence Diagrams

Figure 5: Sequence Diagram



3.7. State Machine Diagram

Figure 6: Behavioral State Machine Diagram



4. Final UI snapshots:

Figure 7: Opening page of the application

Figure 8: Changing the floor

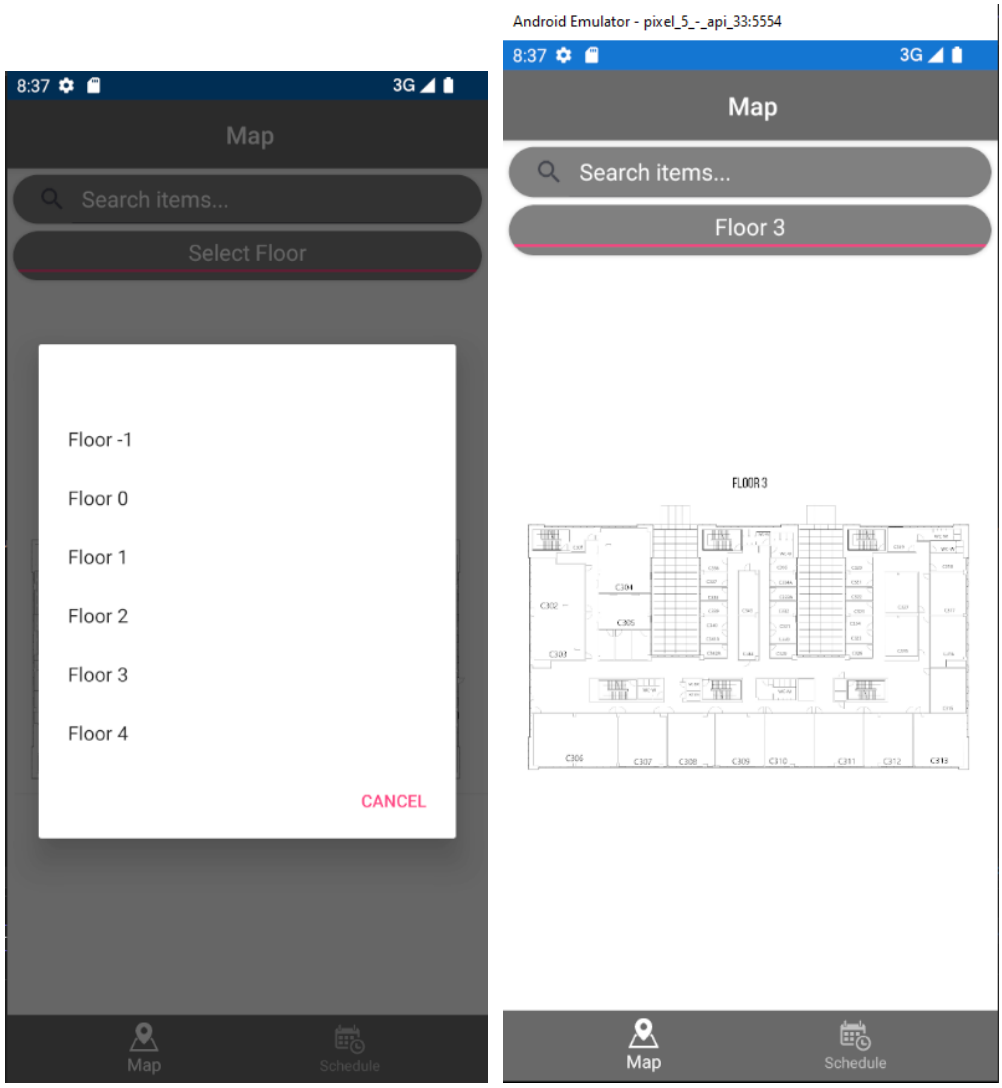


Figure 9: Suggestions for searching.

Figure 10: Searching for a classroom and pinpointing it on the map.

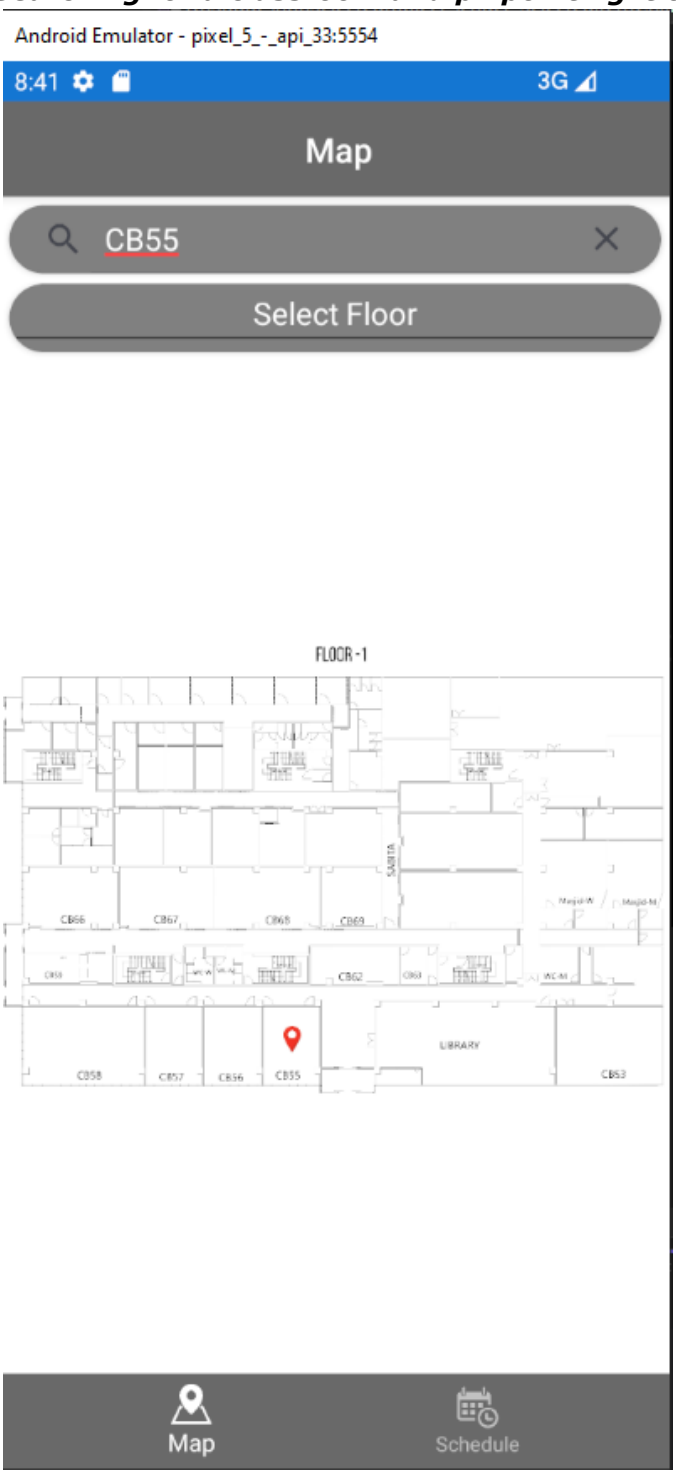


Figure 11: Searching for a classrom schedule and displaying it.

5. Glossary of terms

GUI	Graphical User Interface
App	Application
Xamarin	It is an open-source platform for creating modern and highperformance applications for iOS, Android and Windows with .NET.
CSV	CSV (Comma-Separated Values) is a text file format where data is organized in rows and columns, with values separated by commas.

6. Contributions of team members

During the whole project process our leader Emir directed any of us to certain tasks. Also, every week he set up a meeting to check what we have done in one week. In some weeks, some of us faced some difficulties about solving problems in our parts. At that point Emir talked to all of us and gave us new tasks.

During this process Esad Talha worked on UI design and back-end development,

Resul Mert worked on front-end development and testing part,

Hasan worked on DBA and back-end development,

Lastly Emir worked on DBA and back-end development.