**3.Functional Requirement Specification:**

**3.1Organization**

* + 1. **Stakeholders:**

Stakeholders include individuals and organizations which are interested in the given product or have some sort of relation to the given product. More likely stakeholders are the people or organization which will use the product for the benefit of the individual or the organization. The stake holders for the product are given below:

1.The Math Department: The department wants to digitalize the process of reserving rooms, viewing available rooms, scheduling tutors for the MAC department, provide students the ability to view which classes and subjects are available or not at a particular time.

2.Office Manager: Office Manager are the management groups who have the authority to make changes to the rooms and tutors. They are the administrator of the app and have the uppermost control of the app .They can verify room reservations made by different students as well as accessing statistics about past room usage

3.Teachers: Teachers who are interested in reserving rooms for seminar and programs. Withthe help of the app the teachers will be able to reserve different rooms for the seminars and programs. They can also look into the app to find out the available time of different room, which rooms are reserved already and when. This helps them to plan their reservation of the room for their programs

4.Students: Students need to to request reservations for the rooms that are available for their programs They also need to know the tutors and the classes availability for the classes they are enrolled in. They must be able to view the time for their desired course and see which tutor is available at the given time.

5.Tutors: Tutors who are assigned to teach particular sujects to the students.They need to be able to access the system to view their schedule as well as enter their availability and different stipulations for working. They can request to make changes to their schedule if required.

6.Schedule Maker: Schedule maker who are assigned to prepare the schedule for the tutors based on their schedules. They need to be able to view all of the available tutors and use this information to create a weekly schedule that will adhere to all of the requirements.

**3.1.2 Actors and Goals**

Actors can be defined as people or devise which will directly interact with the product and can be know as participators. Each actor will have a specific goal with the product by interreacting with the system.

|  |  |  |
| --- | --- | --- |
| Actor | Goals | Use Case |
| Tutor, Schedule Maker  Tutor DB | Be able to enter availability, and different stipulations for the schedule | EnterTutorAvailability(UC-4) |
| Student, Teacher, Manager  Room DB  (Participator) | View the current schedule of all the rooms available for reservation | ViewCurrentSchedule(UC-1) |
| Student, Teacher, Manager  Room DB  (Participator) | Reserve a room given that it’s available | ReserveRoom(UC-2) |
| Manager  Room DB  (Participator) | View the statistics of each of the rooms showing how often rooms are reserved | ViewRoomStatistics(UC-3) |
| Schedule Maker  Tutor DB  (Participator) | Create a schedule using the availability provided by the tutors | CreateSchedule(UC-6) |
| Schedule Maker  Tutor DB  (Initiator) | Manage all available tutors allowing their information to be changed or deleted | ManageTutors(UC-5) |
| Schedule Maker  Tutor DB  (Initiator) | View statistics about previous schedules, like when more tutors are generally needed | TutoringStatistics(UC-7) |
| Student  (Participator) | View the available classes and tutors related to the classes and reserve a seat on the class. | ReserveSeat(UC-8) |

The product is used by lots of teachers, students, tutors to perform their respective tasks. The teachers use it to reserve rooms for their seminars and programs. Students use it book rooms and reserve seats for tutoring. Tutors use it to enter their schedule to the system. Schedule user uses it to create schedule of the tutors. Admins use it to track the room usage and the tutoring usage.

* + 1. **Use Cases**

**Casual Description:**

**UC#1 Viewing Current Room Schedule**

Any user should be able to open the program and look at the current schedule of rooms. This will show which rooms are currently available as well as which are currently in use. If a room is available, it will give the user an option to reserve the room. The schedule should be updated in real time so that multiple requests are not made to the same room.

**UC#2 Reserving a Room**

Users should be able to go from the current schedule to a screen that will allow them to reserve a room. Teachers and department staff should be able to reserve a room with no questions asked. Students trying to make a reservation will have a request sent to the Office Manager that will then have to either approve or deny the request. Reserved rooms are not able to be requested.

**UC#3 Viewing Statistics of Room Reservations**

The office manager should be able to open the program and have an option to view statistics about past room reservations. This will allow the user to see which rooms are reserved the most often as well as what times are the most popular for reservations.

**UC#4 Entering Tutoring Availability**

Tutors should be able to log in and provide the schedule maker with their availability. This will allow them to enter their hours available for each week. They will also be able to enter their work stipulations that will affect when and how they are scheduled. They should be able to update the provided information when necessary.

**UC#5 Managing Current Tutors**

The schedule maker should be able to view all of the current tutors that are in the system. They should be able to add new tutors, edit currently existing tutors and delete any of the existing tutors. Deleting should require verification before fully deleting the tutor.

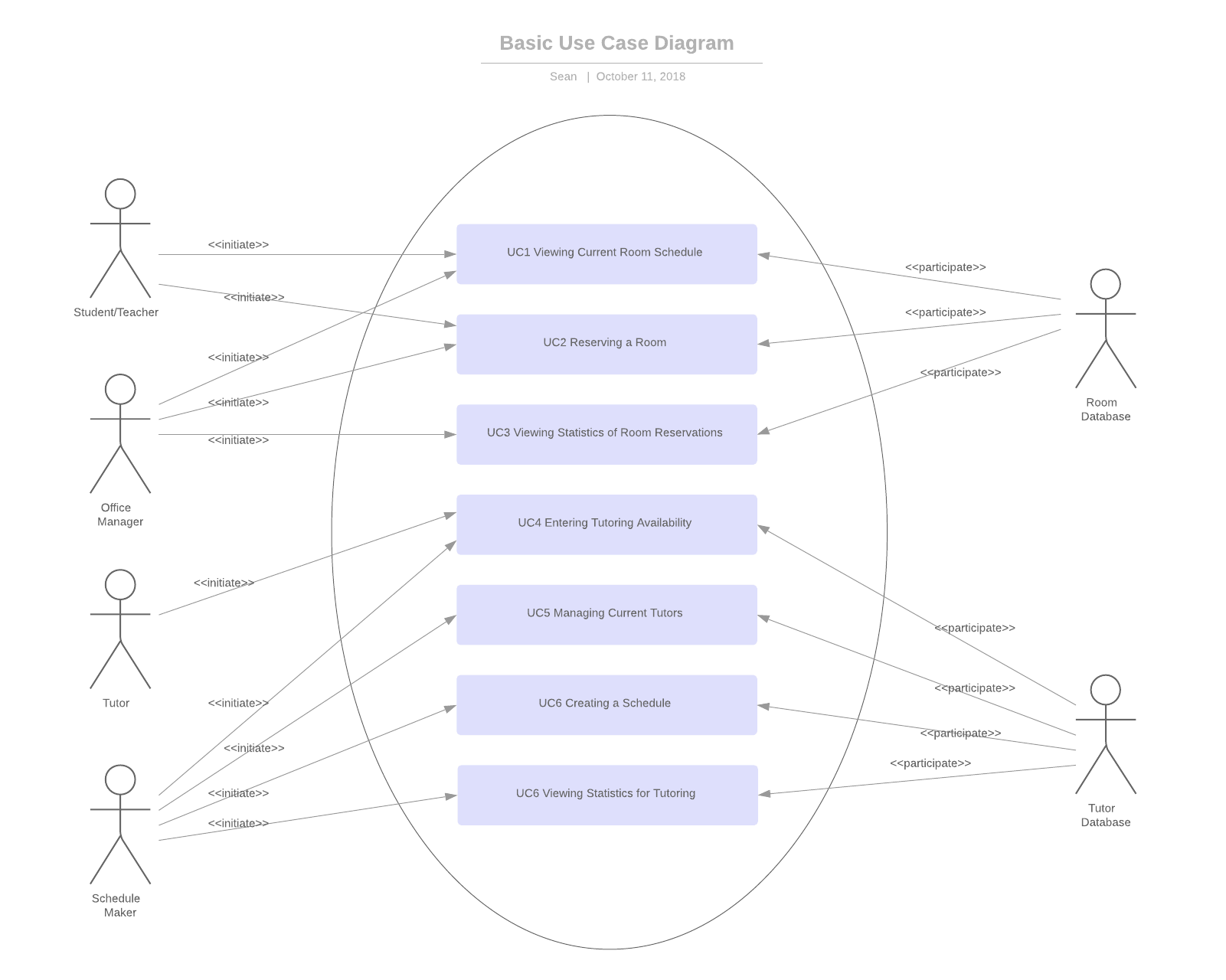
**UC#6 Creating a Schedule**

The schedule maker needs to be able to create a weekly schedule based on the tutors that they have available. The program should suggest tutors so that each table is covered by a tutor with that subject listed at all times of the day. The schedule maker should just have to confirm the schedule will work and then let the tutors know.

**UC#7 Viewing Statistics for Tutoring**

The schedule maker should be able to view statistics for when tutors are most in demand. They should have a way to view when extra tutors needed to be scheduled as well as how often. This will help them determine whether they should initially schedule more tutors on certain days or at certain times.

**Use case Diagram:**



**Traceability Matrix:**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Priority weight | UC#1 | UC#2 | UC#3 | UC#4 | UC#5 | UC#6 | UC#7 | UC#8 |
| REQ-1 | 5 | X |  | X |  |  |  |  |  |
| REQ-2 | 5 | X |  | X |  |  |  |  |  |
| REQ-3 | 5 | X |  | X |  |  |  |  |  |
| REQ-4 | 5 |  | X |  |  |  |  |  |  |
| REQ-5 | 3 |  | X |  |  |  |  |  |  |
| REQ-6 | 2 |  |  |  |  |  |  |  |  |
| REQ-7 | 5 |  |  |  |  |  |  |  |  |
| REQ-8 | 4 |  |  |  | X | X | X |  |  |
| REQ-9 | 4 |  |  |  |  |  |  |  |  |
| REQ-10 | 4 |  |  |  | X | X | X |  |  |
| REQ-11 | 4 |  |  |  |  |  |  |  | X |
| RE-12 | 3 |  |  |  | X |  |  | X | x |
| Total Weight |  | 15 | 8 | 15 | 11 | 8 | 8 | 3 | 7 |

**Fully -Dressed description of use case**

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| **Use Case UC-1: Viewing Current Room Schedule** |
| **Related Requirements:** REQ-1,REQ-2,REQ3 |
| **Initiating Actor :** Student, Teacher and Office manager |
| **Participating Actor:** Room database |
| **Actor’s Goal:** View the status of the room and the schedule of the tutor. |
| **Pre condition:**  The system has a reservations for a programs on a given time and tutors are assigned a particular calsss according to their schedules. |
| **Flow of events For Main Success Scenarios:**  User selects “View Room Schedule” in main UI.  Systems view the schedule of the rooms. |

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| **Use Case UC-3: Viewing Statistics for Room Reservation** |
| **Related Requirements:** REQ-1,REQ-2,REQ-3 |
| **Initiating Actor :** Student, Teacher and Office manager |
| **Participating Actor:** Room database |
| **Actor’s Goal:** Reserve the room for the events |
| **Pre condition:**  The system has a reservations space for room to be reserved for different events.  **Post conditions :**  The system views thestats for different rooms for the given date and time. |
| **Flow of events For Main Success Scenarios:**  Admins selects the available time period and views different stats about the rooms.  Systems provides the stats for different rooms. |
| **Use Case UC-4 : Entering Tutor avaibility** |
| **Related Requirements:** REQ-8,REQ-10,REQ-12 |
| **Initiating Actor : Tutor, Schedule Maker** |
| **Participating Actor: Tutor** database |
| **Actor’s Goal:** Entering the tutor available hours into the system |
| **Pre condition:**  The system has a space for tutor to enter their available hours into the system.  **Post conditions :**  The system adds the tutors hours into the system. |
| **Flow of events For Main Success Scenarios:**  User select “Enter tutor hours “ in main UI.  System gives the form for tutor to enter their available hours. |

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| **Use Case UC-6 : Creating a Schedule** |
| **Related Requirements:** REQ-8,REQ-11 |
| **Initiating Actor : Schedule Maker** |
| **Participating Actor: Tutor** database |
| **Actor’s Goal:** Creating a schedule for the tutors |
| **Pre condition:**  The system has got schedule of tutors for making the schedule.  **Post conditions :**  The system makes the schedule for the tutors |
| **Flow of events For Main Success Scenarios:**  User select “Create Schedule “ in main UI.  System reviews the schedule of the tutors and creates schedules.. |

**System Sequence Diagram:**

UC-1 Viewing current room Schedule

Database

UI

User

Asks for Schedules System refers database

Database sends

information to UI

UC-2 **: Viewing Statistics for Room Reservation**

User

Database

UI

User ask for Statistics System refers database

For room Information sent back.

**Use Case UC-4 : Entering Tutor availability**

Enters the tutor Systems updates the

User

UI

Database

Available hours Database

**Use Case UC-6 : Creating a Schedule**

Request the tutor’s Request the schedules

User

UI

Database

Schedules

Views the schedule Provides the schedule

Creates a schedule Delivers schedule to database