Seat Tracker System

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What is Seat Tracker

Project Goals

1. Create a system that displays seat availability.
2. Develop a simple system that is easy to navigate customers and gives the needed information.
3. Customer satisfaction by reducing waiting time.
4. Help businesses improve their operations by providing a valuable tool for them.

Functional Requirements

The system should:

1. identify table status by colours, red for occupied and green for vacant.
2. display the number of vacant and occupied table.
3. display the number of floors and outdoor places.
4. display the total number of customers per day.
5. be responsible for changing the table status automatically.
6. display all the data to customers including seats and their status and total number of occupied/vacant seats.

Non-Functional Requirements

The system should:

1. support Turkish and English languages.
2. have a simple interface.
3. be easy to maintain and update.
4. be available 99.99% of the time during business hours.
5. be easy to use for users with basic computer skills.
6. be connected to a device that help with taking orders and tracking the sets.

Our project's Stakeholders are:

Detractors

Competitors

Government

Developers

Customers

Suponsor

Restaurant Staff

Restaurant Owners

Our Project Staffing are:

Desktop Applications Developer

Tester

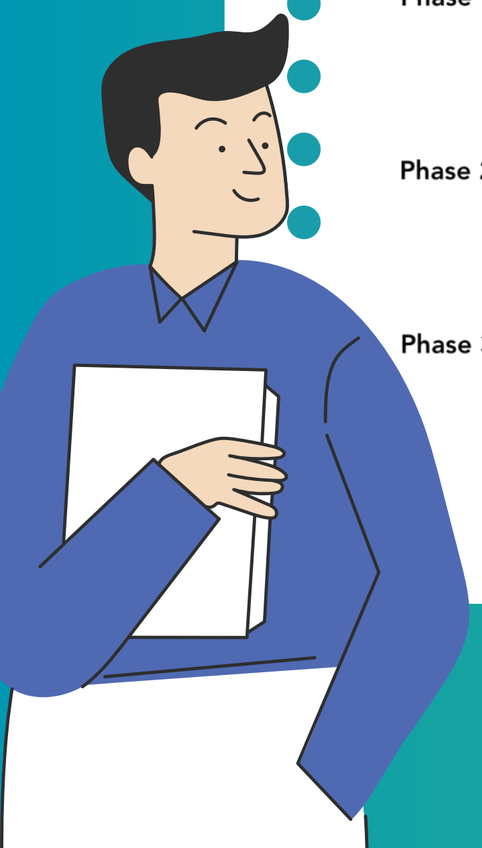
GUI Designer

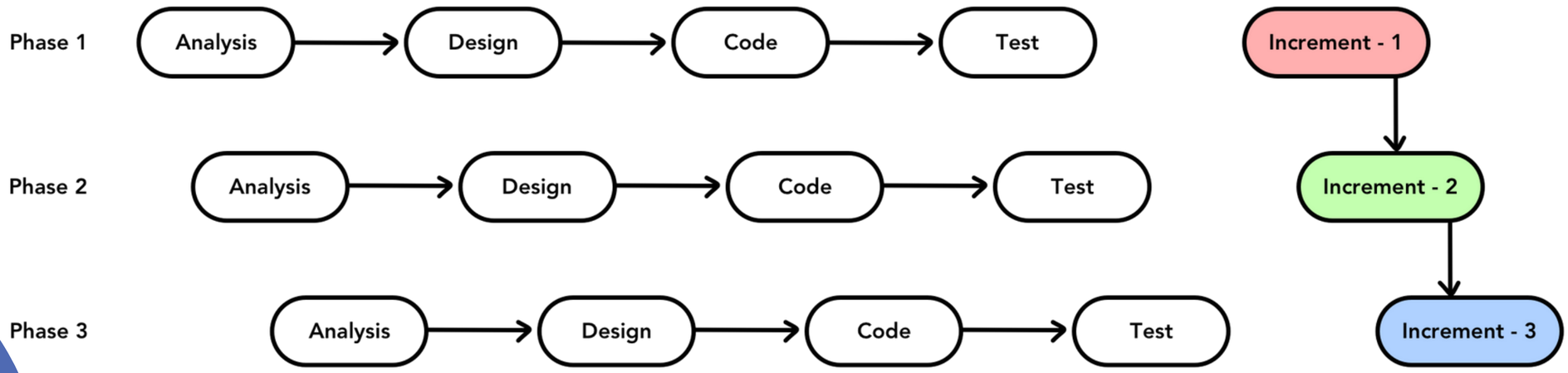
Human Resources Manager

Project Manager

Hardware Technician

SOFTWARE PROCESS MODEL





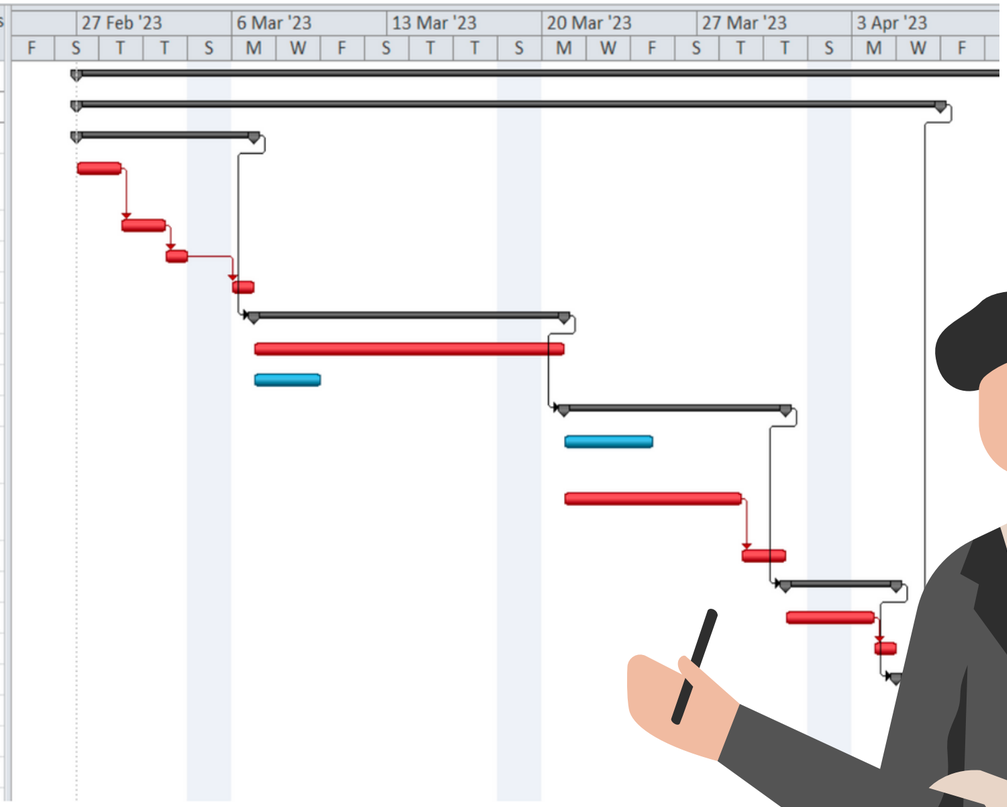
Reasons to choose this model:

- Stakeholder Involvement
- Prioritized Requirements
- Noticing Errors
- Making Improvements
- Testing and Debugging
- Flexibility and Adaptability

SCHEDULE AND EFFORT

Increment 1

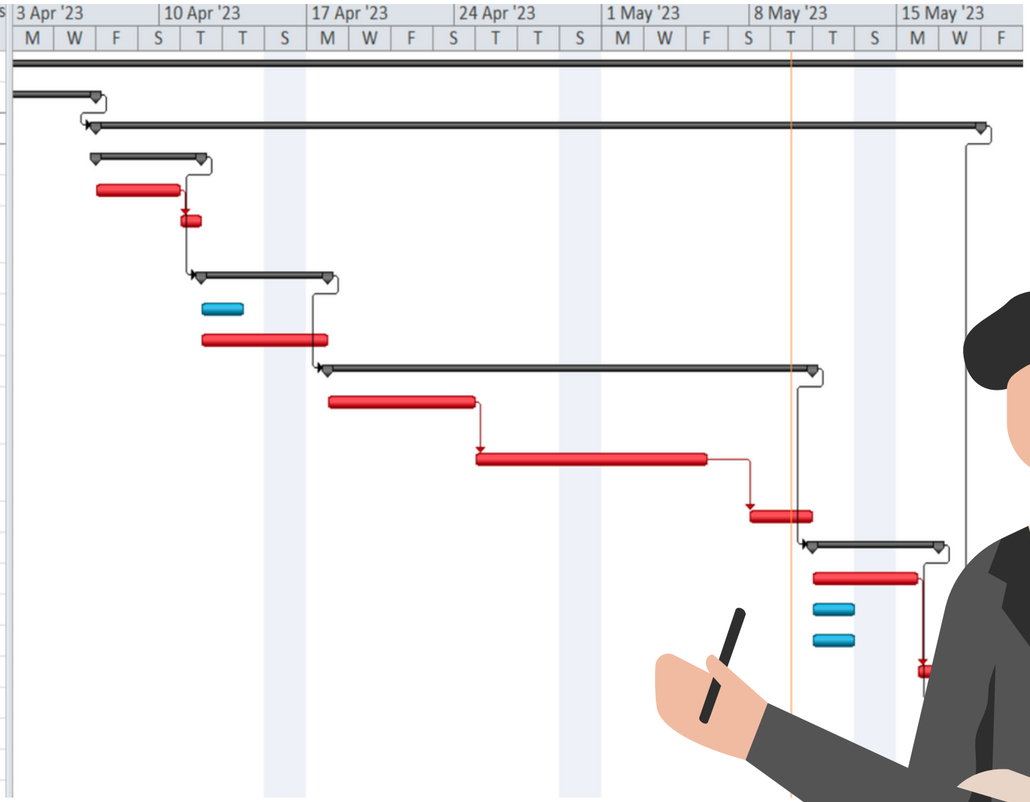
Task Name	Duration	Start	Finish	Predecessors	Res
Increments	**84 days**	**Mon 27.02.23**	**Thu 22.06.23**		
Increment 1	**29 days**	**Mon 27.02.23**	**Thu 6.04.23**		
Requirements Gathering	**6 days**	**Mon 27.02.23**	**Mon 6.03.23**		
Prepare Questions and Conduct Meetings	2 days	Mon 27.02.23	Tue 28.02.23		
Prepare Reports	2 days	Wed 1.03.23	Thu 2.03.23	4	
Analyze Requirements	1 day	Fri 3.03.23	Fri 3.03.23	5	
Specify Requirements	1 day	Mon 6.03.23	Mon 6.03.23	6	
Design	**10 days**	**Tue 7.03.23**	**Mon 20.03.23**	**3**	
Architectural Design	10 days	Tue 7.03.23	Mon 20.03.23		
GUI Design	3 days	Tue 7.03.23	Thu 9.03.23		
Coding	**8 days**	**Tue 21.03.23**	**Thu 30.03.23**	**8**	
Graphical User Interface Implementation	4 days	Tue 21.03.23	Fri 24.03.23		
Signal System Implementation	6 days	Tue 21.03.23	Tue 28.03.23		
Bug Fixing	2 days	Wed 29.03.23	Thu 30.03.23	13	
Testing	**3 days**	**Fri 31.03.23**	**Tue 4.04.23**	**11**	
System Testing	2 days	Fri 31.03.23	Mon 3.04.23		
User Testing	1 day	Tue 4.04.23	Tue 4.04.23	16	
Review	**2 days**	**Wed 5.04.23**	**Thu 6.04.23**	**15**	
Customer Review	2 days	Wed 5.04.23	Thu 6.04.23		
Increment 2	**30 days**	**Fri 7.04.23**	**Thu 18.05.23**	**2**	
Increment 3	**25 days**	**Fri 19.05.23**	**Thu 22.06.23**	**20**	



SCHEDULE AND EFFORT

Increment 2

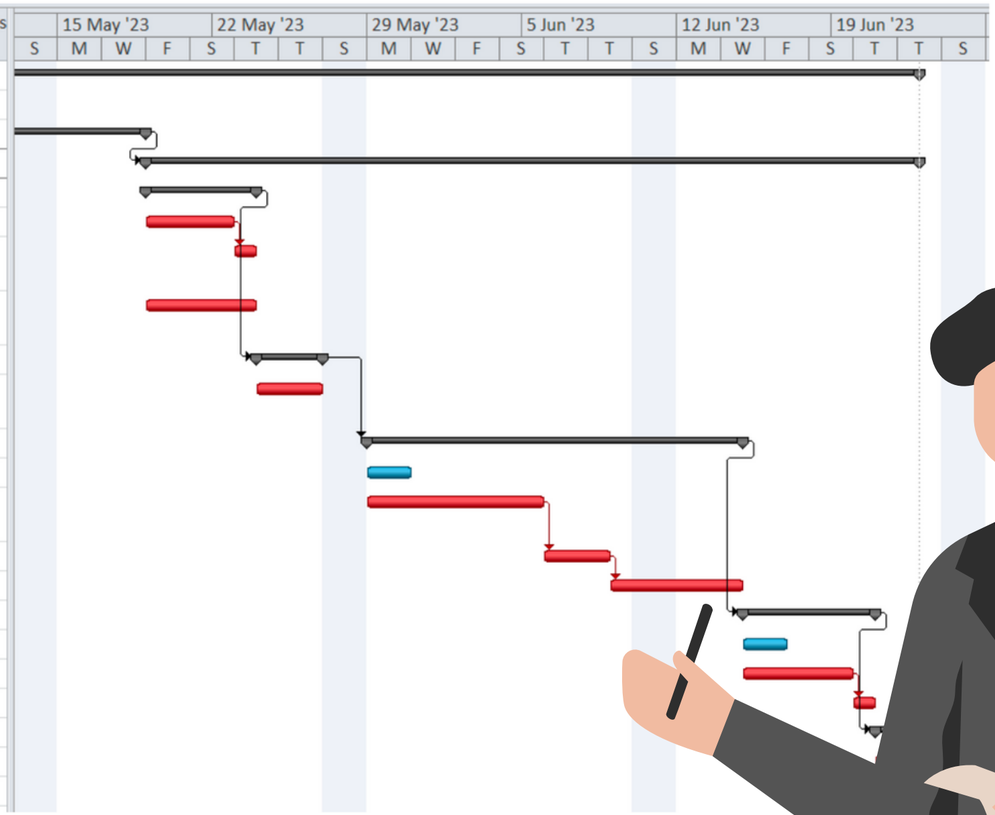
Task Name	Duration	Start	Finish	Predecessors	Res
Increments	**84 days**	**Mon 27.02.23**	**Thu 22.06.23**		
Increment 1	**29 days**	**Mon 27.02.23**	**Thu 6.04.23**		
Increment 2	**30 days**	**Fri 7.04.23**	**Thu 18.05.23**	**2**	
Requirements Specifying	**3 days**	**Fri 7.04.23**	**Tue 11.04.23**		
Analyze Feedbacks	2 days	Fri 7.04.23	Mon 10.04.23		
Specify Requirements According to Feedbacks	1 day	Tue 11.04.23	Tue 11.04.23	22	
Design	**4 days**	**Wed 12.04.23**	**Mon 17.04.23**	**21**	
Security Design	2 days	Wed 12.04.23	Thu 13.04.23		
Database Design	4 days	Wed 12.04.23	Mon 17.04.23		
Coding	**17 days**	**Tue 18.04.23**	**Wed 10.05.23**	**24**	
Database Implementation	5 days	Tue 18.04.23	Mon 24.04.23		
External System Implementation	9 days	Tue 25.04.23	Fri 5.05.23	28	
Bug Fixing	3 days	Mon 8.05.23	Wed 10.05.23	29	
Testing	**4 days**	**Thu 11.05.23**	**Tue 16.05.23**	**27**	
Hardware Testing	3 days	Thu 11.05.23	Mon 15.05.23		
Security Testing	2 days	Thu 11.05.23	Fri 12.05.23		
Database Testing	2 days	Thu 11.05.23	Fri 12.05.23		
User Testing	1 day	Tue 16.05.23	Tue 16.05.23	32	
Review	**2 days**	**Wed 17.05.23**	**Thu 18.05.23**	**31**	
Customer Review	2 days	Wed 17.05.23	Thu 18.05.23		
Increment 3	**25 days**	**Fri 19.05.23**	**Thu 22.06.23**	**20**	



SCHEDULE AND EFFORT

Increment 3

Task Name	Duration	Start	Finish	Predecessors	Res
Increments	**84 days**	**Mon 27.02.23**	**Thu 22.06.23**		
Increment 1	**29 days**	**Mon 27.02.23**	**Thu 6.04.23**		
Increment 2	**30 days**	**Fri 7.04.23**	**Thu 18.05.23**	**2**	
Increment 3	**25 days**	**Fri 19.05.23**	**Thu 22.06.23**	**20**	
Requirements Specifying	**3 days**	**Fri 19.05.23**	**Tue 23.05.23**		
Analyze Feedbacks	2 days	Fri 19.05.23	Mon 22.05.23		
Specify Requirements According to Feedbacks	1 day	Tue 23.05.23	Tue 23.05.23	40	
Identify Security Vulnerabilities	3 days	Fri 19.05.23	Tue 23.05.23		
Design	**3 days**	**Wed 24.05.23**	**Fri 26.05.23**	**39**	
Overall System Design Improvement	3 days	Wed 24.05.23	Fri 26.05.23		
Coding	**13 days**	**Mon 29.05.23**	**Wed 14.06.23**	**43**	
Security Implementation	2 days	Mon 29.05.23	Tue 30.05.23		
Functionality and Usability Improvement	6 days	Mon 29.05.23	Mon 5.06.23		
Optimization	3 days	Tue 6.06.23	Thu 8.06.23	47	
Bug Fixing	4 days	Fri 9.06.23	Wed 14.06.23	48	
Testing	**4 days**	**Thu 15.06.23**	**Tue 20.06.23**	**45**	
System Testing	2 days	Thu 15.06.23	Fri 16.06.23		
Security Testing	3 days	Thu 15.06.23	Mon 19.06.23		
User Testing	1 day	Tue 20.06.23	Tue 20.06.23	52	
Review	**2 days**	**Wed 21.06.23**	**Thu 22.06.23**	**50**	
Customer Approval	1 day	Wed 21.06.23	Wed 21.06.23		
Official Release	1 day	Thu 22.06.23	Thu 22.06.23	55	



MEASUREMENTS

How to specify measurements?

1. Making questions to identify measurements.
2. Identifying measurements.
3. Storing and collecting measurements.

PROJECT RISKS

IMPACT RANK	RISK DESCRIPTION
1	**Unexpected Software Failure:** Software can fail for a variety of reasons, like crashes, errors and other unexpected behaviors.
2	**Testing Risks :** the system might be difficult to test in r be installed in restaurant.
3	**Hardware Risks :** The device taken by the customer when connected to the table and transmit information table's status.
4	**Performance Risks :** The risks associated with software performance, slow load time and insufficient testing.
5	**Supplier Risks :** If hardware suppliers are unable to d time, the completion of the project may be delayed.
6	**Inadequate Project Management :** Poor project mana can lead to various problems, which can disrupt the proje
7	**Limited Resources Risks :** Factors that may restrict the ability to do the project effectively, such as time, h information limitations, and other resource constraints, a
8	**Cost Risks :** In the development process, the budget may there may be disagreement regarding the license and m the restaurant where this project will be used.
9	**User Adoption Risks :** The system may not be adopte because it's not easy to use, or because of their ages or This issue could affect the system's overall effectiveness
	Lack of Communication : Risks associated w

LIKELIHOOD RANK	RISK DESCRIPTION
1	**Limited Resources Risks:** Factors that may restrict the development team's ability to do the project effectively, such as time, human resource and information limitations, and other resource constraints, are included.
2	**Unexpected Software Failure:** Software can fail for a variety of reasons, like crashes, errors and other unexpected behaviors.
3	**Performance Risks:** The risks associated with software quality such as poor performance, slow load time and insufficient testing.
4	**Inadequate Project Management:** Poor project management of a project can lead to various problems, which can disrupt the project process.
5	**Hardware Risks:** The device taken by the customer must work properly when connected to the table and transmit information correctly about the table's status.
6	**Testing Risks:** the system might be difficult to test in real life as it needs to be installed in restaurant.
7	**Supplier Risks :** If hardware suppliers are unable to deliver the device on time, the completion of the project may be delayed.
8	**Lack of Communication:** Risks associated with communication breakdowns among project stakeholders, including developers, clients, and project managers.
9	**Scheduling Risks:** The risks associated with project scheduling like unexpected setbacks or missed deadlines can lead to delays.
10	**Cost Risks:** In the development process, the budget may not be sufficient, or there may be disagreement regarding the license and maintenance costs for the restaurant where this project will be used.

Likelihood Risk List

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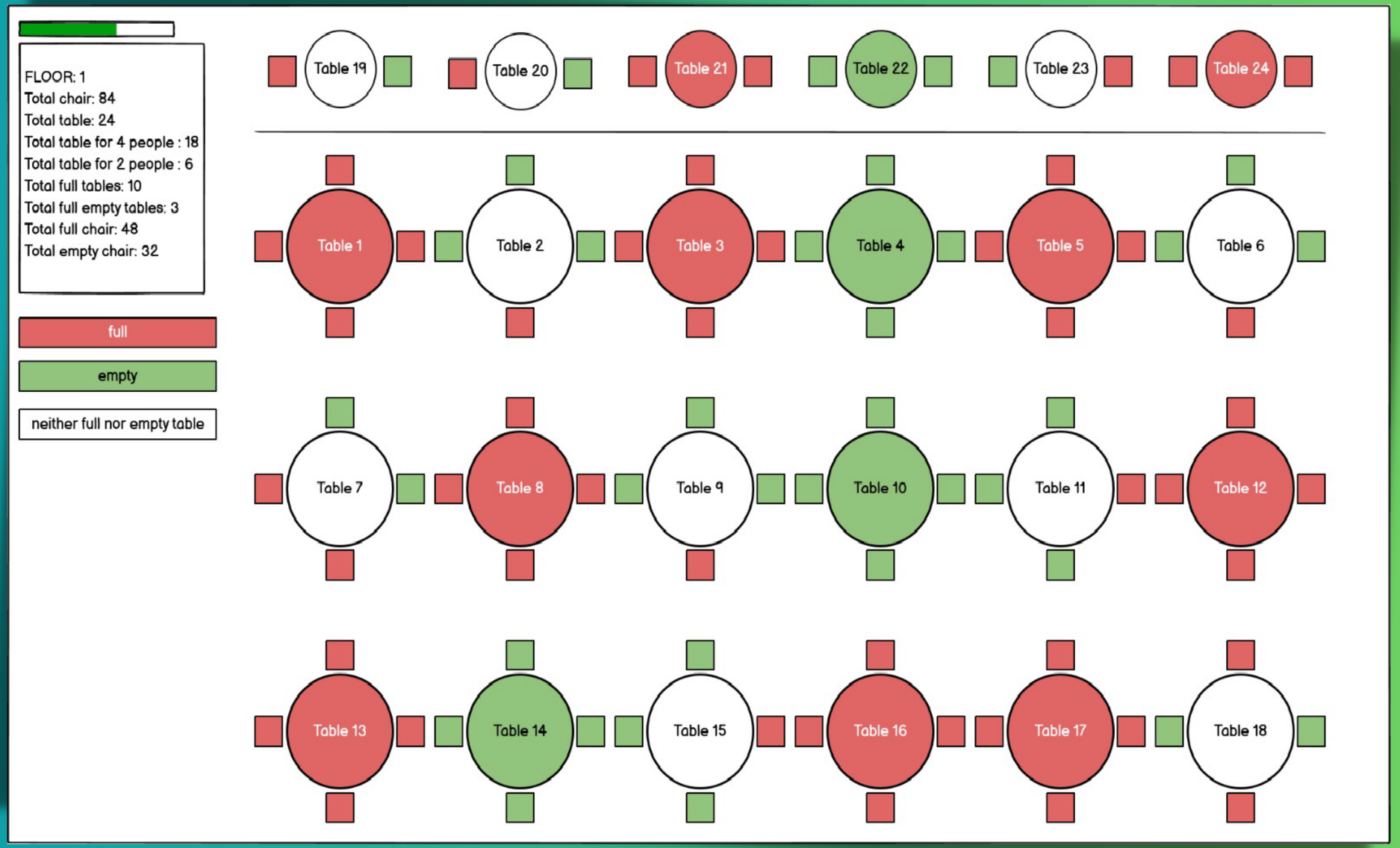
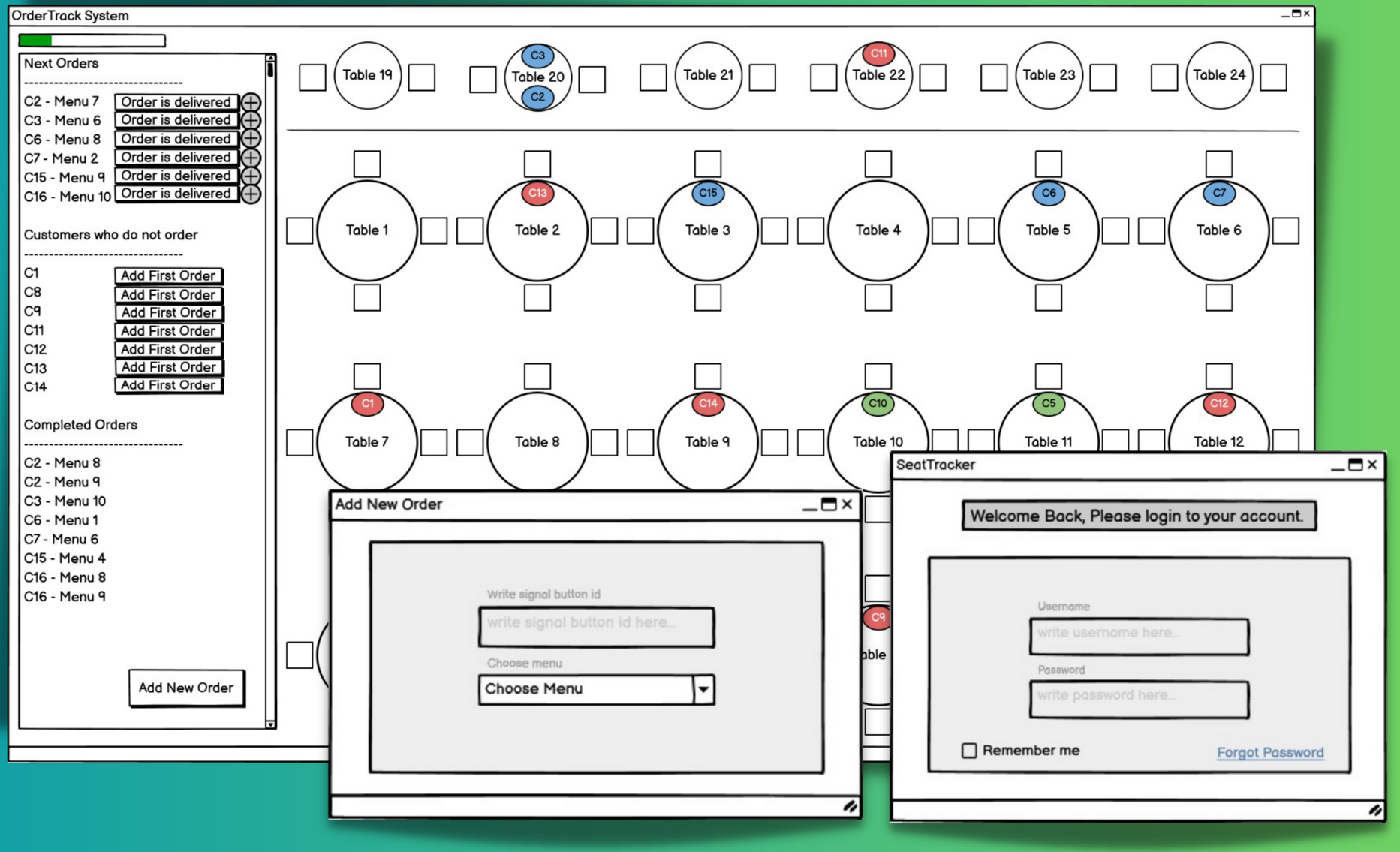
Impact Risk List

LIKELIHOOD RANK	IMPACT RANK	COMBINED RANK	RISK DESCRIPTION
2	1	3	**Unexpected Software Failure :** Software can fail for a variety of reasons, like crashes, errors and other unexpected behaviors.
3	4	7	**Performance Risks :** The risks associated with software quality such as poor performance, slow load time and insufficient testing.
1	7	8	**Limited Resources Risks :** Factors that may restrict the development team's ability to do the project effectively, such as time, human resource and information limitations, and other resource constraints, are included.
5	3	8	**Hardware Risks :** The device taken by the customer must work properly when connected to the table and transmit information correctly about the table's status.
6	2	8	**Testing Risks :** the system might be difficult to test in real life as it needs to be installed in restaurant.
4	6	10	**Inadequate Project Management :** Poor project management of a project can lead to various problems, which can disrupt the project process.
7	5	12	**Supplier Risks :** If hardware suppliers are unable to deliver the device on time, the completion of the project may be delayed.
8	10	18	**Lack of Communication :** Risks associated with communication breakdowns among project stakeholders, including developers, clients, and project managers.
10	8	18	**Cost Risks :** In the development process, the budget may not be sufficient, or there may be disagreement regarding the license and maintenance costs for the restaurant where this project will be used.

SYSTEM GRAPHICAL USER INTERFACE


FLOOR: 1
Total chair: 84
Total table: 24
Total table for 4 people : 18
Total table for 2 people : 6
Total full tables: 10
Total full empty tables: 3
Total full chair: 48
Total empty chair: 32
full
empty
neither full nor empty table
Table 19
Table 20
Table 21
Table 22
Table 23
Table 24
Table 1
Table 2
Table 3
Table 4
Table 5
Table 6
Table 7
Table 8
Table 9
Table 10
Table 11
Table 12
Table 13
Table 14
Table 15
Table 16
Table 17
Table 18


OrderTrack System
Next Orders
C2 - Menu 7 Order is delivered
C3 - Menu 6 Order is delivered
C6 - Menu 8 Order is delivered
C7 - Menu 2 Order is delivered
C15 - Menu 9 Order is delivered
C16 - Menu 10 Order is delivered
Customers who do not order
C1 Add First Order
C8 Add First Order
C9 Add First Order
C11 Add First Order
C12 Add First Order
C13 Add First Order
C14 Add First Order
Completed Orders
C2 - Menu 8
C2 - Menu 9
C3 - Menu 10
C6 - Menu 1
C7 - Menu 6
C15 - Menu 4
C16 - Menu 8
C16 - Menu 9
Add New Order
Table 19
Table 20
Table 21
Table 22
Table 23
Table 24
Table 1
Table 2
Table 3
Table 4
Table 5
Table 6
Table 7
Table 8
Table 9
Table 10
Table 11
Table 12
Add New Order
Write signal button id
write signal button id here...
Choose menu
Choose Menu
SeatTracker
Welcome Back, Please login to your account.
Username
write username here...
Password
write password here...
Remember me
Forgot Password

SOFTWARE TOOLS

1. Graphic User Interface (GUI) Design

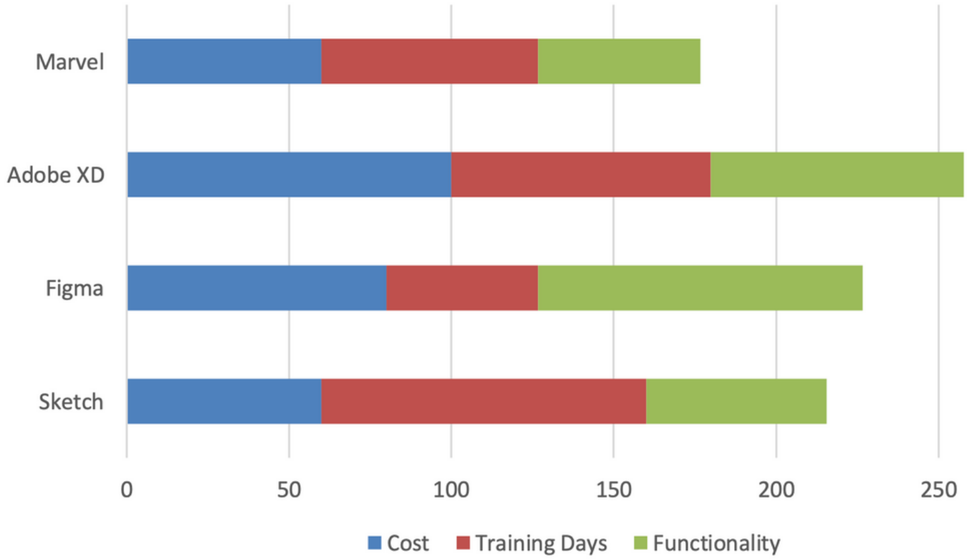
Tool cost/Training/Functionality data

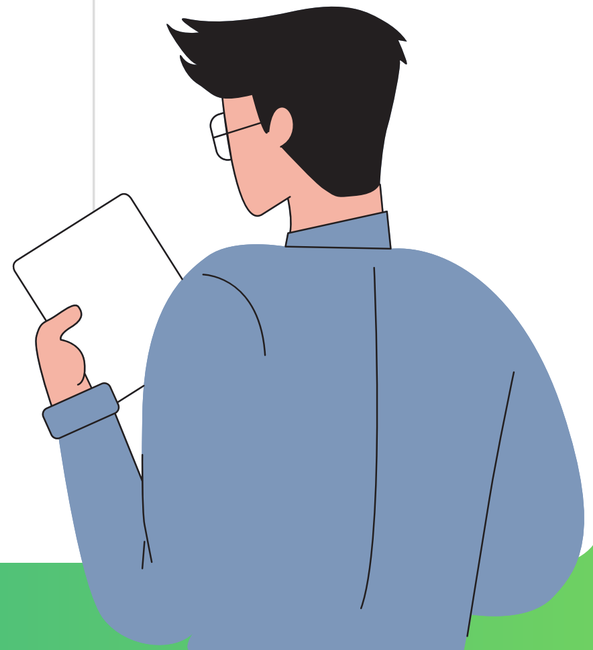
Tool	Sketch	Figma	Adobe XD	Marvel
Cost	**9$ / month**	12$ / month	14.99$ / month	**9$ / month**
Training Days	15 days	**7 days**	12 days	10 days
Functionality	50	**90**	70	45

Normalized cost/Training/Functionality data

Tool	Sketch	Figma	Adobe XD	Marvel
Cost	**60**	80	99.93	**60**
Training Days	100	**46.66**	80	66.66
Functionality	55.55	**100**	77.77	50

Normalized graph





2. Integrated Development Environment (IDE)

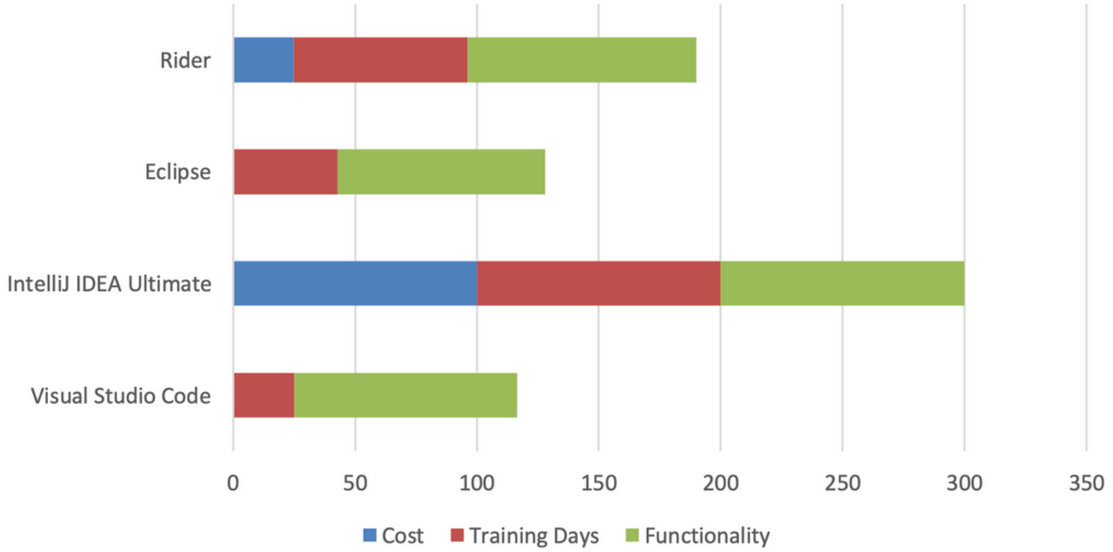
Tool cost/Training/Functionality data

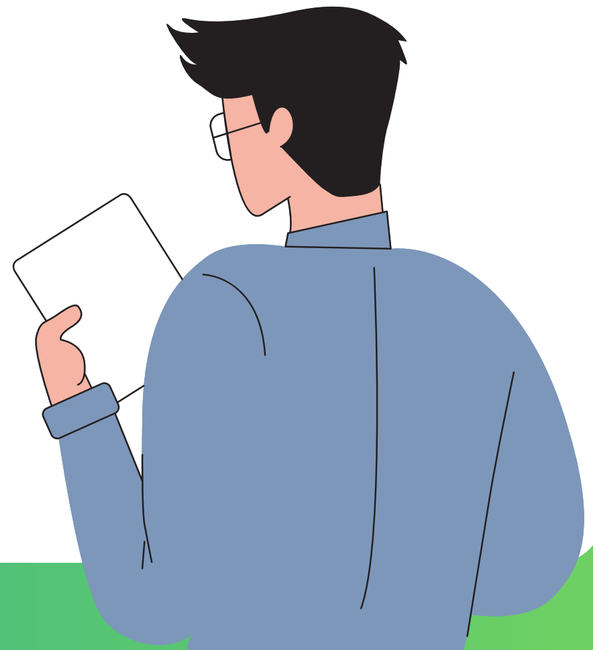
Tool	Visual Studio Code	IntelliJ IDEA Ultimate	Eclipse	Rider
Cost	0$ / month	59.90$ / month	0$ / month	14.90$ / month
Training Days	7 days	28 days	12 days	20 days
Functionality	86	94	80	88

Normalized cost/Training/Functionality data

Tool	Visual Studio Code	IntelliJ IDEA Ultimate	Eclipse	Rider
Cost	**0**	100	**0**	24.87
Training Days	**25**	100	42.86	71.43
Functionality	91.49	**100**	85.11	93.62

Normalized graph





3. Collaboration And Communication

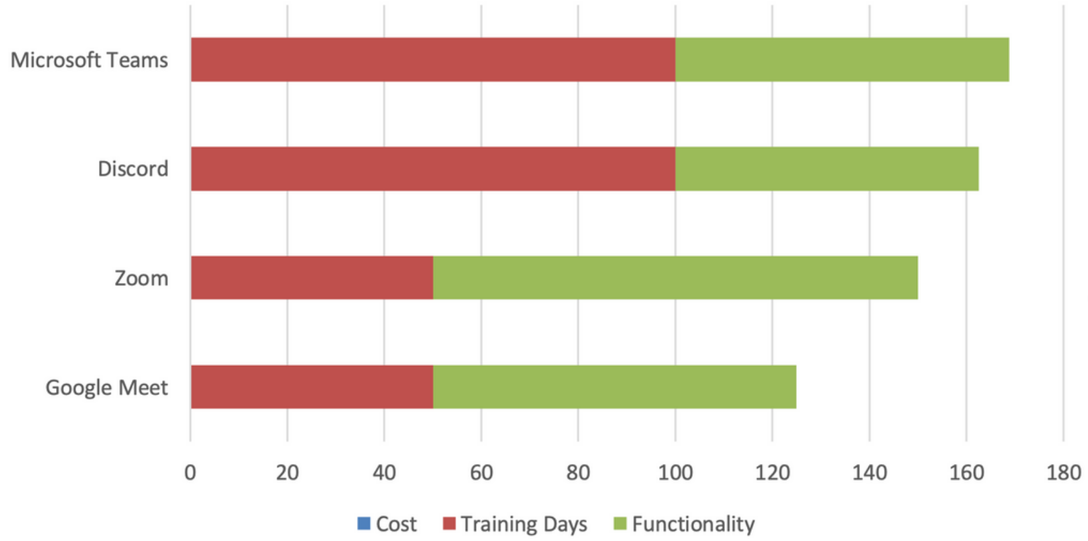
Tool cost/Training/Functionality data

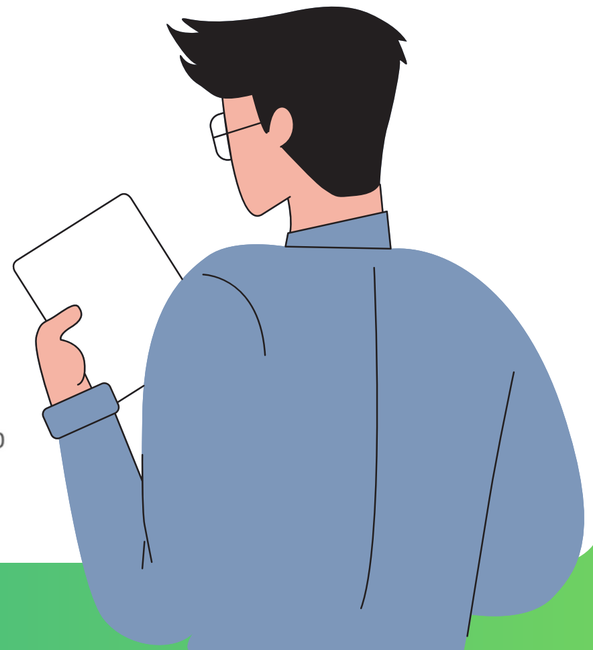
Tool	Google Meet	Zoom	Discord	Microsoft Teams
Cost	0$ / month	0$ / month	0$ / month	0$ / month
Training	1	1	2	2
Functionality	60	80	50	55

Normalized cost/Training/Functionality data

Tool	Google Meet	Zoom	Discord	Microsoft Teams
Cost	0	0	0	0
Training Days	50	50	100	100
Functionality	75	100	62.5	68.75

Normalized graph





PROJECT NEEDS

Software Needs

1. Operating System: Windows 10 or higher, MacOS 10.13 or higher.
2. Integrated Development Environement (IDE): Visual Studio Code 1.64 or higher.
3. Colloaboration and Communication Tools: Discord 14.10.2 or higher.
4. Programming Languages: C++ (ISO/IEC 14882:2020), JavaScript (ECMAScript 2021), Node.js (18.14.0 LTS) and MQTT (5.0).
5. Documentation: Google Docs and Github.
6. Database Management: MySQL (version 8.0.31) and SQL (16.0.1000.6).
7. User Interface (UI) Library: Riot.js (v7.1.0).

Hardware Needs

1. Interactive Device
2. Screen
3. Networking Equipment
4. Computer
5. Backup Power Source

Support Needs

1. Technical Support
2. Staff Training Support
3. Integration Support
4. Maintaint Support
5. Owner Support
6. Quality Assurance Support
7. Security Support

CONCLUSION

THANK YOU!