KING SAUD UNIVERSITY

COLLEGE OF COMPUTER AND INFORMATION SCIENCES

Department of Software Engineering

SWE- 211 INTRODUCTION TO SOFTWARE ENGINEERING

PROJECT REPORT

1444 - 2022

TEAM MEMBERS

01 Nouv Al-Qahtani
442201905

02 Rawan Al-Qahtani
441200407

03 Reema Al-Rayis
442201335

04 Najah Al-Rowais
442201401

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1. INTRODUCTION

These days, a lot of schools - if not all - provides bus school services for the students, a lot of students are using this services so we need to manage and arrange the school bus, drivers, and parents, thus in our SWE211 project, the major goal is to design and develop a School Bus Monitoring and Management System(SBMS) which can improve the efficiency and qualifies of bus transportation and raise the satisfaction of parents and students.

This is the first part of the project , We suppose the following assumptions for this project:

- Our company is called: Yellow Bus.
- Our client: All Schools in Riyadh .
- Project name: School Bus monitoring and management system.
- Project outcome: An School Bus application to provide management of bus services and safety for children in school buses .

The first part of this project contains the following:

- Feasibility study
- Software process rationale.
- Project workplan.

2. FEASIBILITY STUDY

2.1 Project Description

In this project we are going to develop a school bus monitoring and management system (SMBS),it is an IOS application that provides school bus services which target all schools in Riyadh , it will help solve the problems that parents faces daily while their children are using the school bus ,like not being able to contact your children bus driver or not knowing your children pickup schedule, it will also provides many services like being able to view the location of the bus carrying your child in real time And being able to cancel advanced scheduled pickup, which will save the time and effort for both parents and bus drivers and ensure children safety while using the school bus.

2.2 Project Sponsor

Dr.Sahar ElSayed Bayoumi

2.3 TARGETED USERS

SBMS is a bus monitoring and management system , it targets Any School in Riyadh ,mostly directed toward the parents who are worried about their child's safety and want to be able to have a detailed information about their child in the school bus.

2.4 PROJECT STAFFING

Person	Role
Nouv Al-Qahtani	Project manager Project Reviewer Tasks manager
Rawan Al-Qahtani	Requirements Specifier User interface designer Software architect
Reema Al-Rayes	test designer quality assurance usability assurance
Najah Al-Rowais	Implementer Code Reviewer Requirements reviewer
Basmah Al-Sadaan	Tasks tester Business analyst Researcher

2.5 FINANCIAL ANALYSIS

For the five years started from 2022

	2022	2023	2024	2025	2026
Increased sales	120,000	210,000	280,000	350,000	420,000
Reduction in customer complaint calls	10,000	10,000	10,000	10,000	10,000
Reduced inventory costs	5,000	5,000	5,000	5,000	5,000
Total Benefits	135,000	225,000	295,000	365,000	435,000
PV of benefit	131,067	212,084	269,966	324,297	375,234
PV of all benefit	131,067	343,151	613,117	937,414	1,312,648
Server	22,000	0	0	0	0
Software license	8,000	0	0	0	0
Development labor	410,000	0	0	0	0
Total development cost	440,000	0	0	0	0
Hardware (e.g. PCs)	18,000	19,500	19,500	19,500	19,500
Software (e.g. testing tools)	12,000	12,000	12,000	12,000	12,000
Operational labor	21,000	25,593	29,160	34,945	40,574
Total operational cost	51,000	57,093	60,660	66,445	72,074
Total Costs	491,000	57,093	60,660	66,445	72,074
Pv of costs					
Pv of all costs					
Total project benefit - cost					
Yearly NVP					
Cumulative Costs					

$ ROI CALCULATION : (300,000 - 70,000)/70000 = 329%

$ BREAK-EVEN POINT CALCULATION: (82,000-82,000)/82,000 = XXXXX;

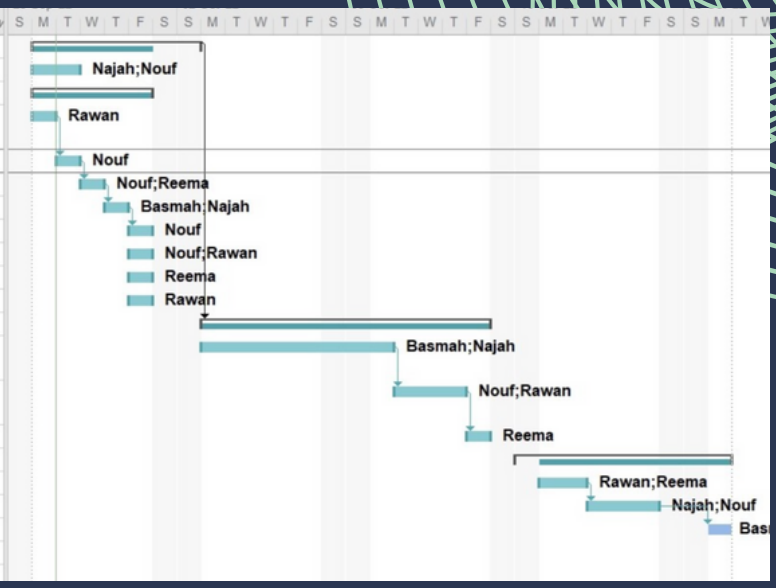
1.3 SOFTWARE PROCESS

Our team found that the project is better to conduct using the plan-driven - Waterfall- software process. The motivation of this choice is the fact that Plane driven's characteristics and advantages completely fit the requirements and constraints of the project.

- Distinct phases
- Visibility of the process
- Clear and well understood requirements
- Simple and straightforward application
- Processes are measurable
- Limited changes

1.4 PROJECT PLAN

	Task Name	Duration	Start	Finish	Resource Names
1	**Phase One**	**6 days**	**Mon 26/09/2**	**Sun 02/10/2**	
2	Introduction	2 days	Mon 26/09/2	Tue 27/09/2	Najah;Nouf
3	**Feasibility Study**	**5 days**	**Mon 26/09/2**	**Fri 30/09/22**	
4	Project Description	1 day	Mon 26/09/22	Mon 26/09/22	Rawan
5	Project Sponser	1 day	Tue 27/09/2	Tue 27/09/2	Nouf
6	Targeted User	1 day	Wed 28/09/2	Wed 28/09/2	Nouf;Reema
7	Project Staffing	1 day	Thu 29/09/2	Thu 29/09/2	Basmah;Najah
8	Financial Analysis	1 day	Fri 30/09/22	Fri 30/09/22	Nouf
9	Software Procces	1 day	Fri 30/09/22	Fri 30/09/22	Nouf;Rawan
10	Project Workplan	1 day	Fri 30/09/22	Fri 30/09/22	Reema
11	Conclusion	1 day	Fri 30/09/22	Fri 30/09/22	Rawan
12	**Phase Two**	**2 wks**	**Mon 03/10/2**	**Fri 14/10/22**	
13	Functional Requirements	6 days	Mon 03/10/22	Mon 10/10/22	Basmah;Najah
14	Non-Functional Requirements	3 days	Tue 11/10/22	Thu 13/10/22	Nouf;Rawan
15	UC Diagram	1 day	Fri 14/10/22	Fri 14/10/22	Reema
16	**Phase Three**	**7 days**	**Sun 16/10/2**	**Mon 24/10/2**	
17	Class diagram	2 days	Mon 17/10/2	Tue 18/10/2	Rawan;Reema
18	Sequence Diagram	3 days	Wed 19/10/2	Fri 21/10/22	Najah;Nouf
19	Mock-up Screens	1 day	Mon 24/10/2	Mon 24/10/2	Basmah



1.5 CONCLUSION

In conclusion, we have completed in our report the first and main part of the project, which include several steps that our team have accomplished.

starting with feasibility study which included the project description, project sponsor, Targeted users, project staffing , and the financial analysis.

Secondly, the software process which our team has decided that the suitable process for our project is the waterfall software process.

Lastly, the workplan which we used Gannt chart to divide the workload, tasks deadline, resources.

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FUCTIONAL REQUIREMENTS

1. ADMIN SHALL BE ABLE TO REGISTER BUS DRIVERS, PARENTS, AND BUSES
2. THE BUS DRIVER SHALL BE ABLE TO CHECK IN AND CHECK OUT THE STUDENTS
3. A BUS DRIVER SHALL BE ABLE TO VIEW THE ROUTES TO THE STUDENTS' HOME LOCATIONS
4. A PARENT AND A BUS DRIVER SHALL BE ABLE TO SEE THE CURRENT LOCATION OF THE BUS
5. ADMIN SHALL BE ABLE TO INPUT THE HOME LOCATION OF THE PARENT'S SON OR DAUGHTER BY CLICKING ON A MAP

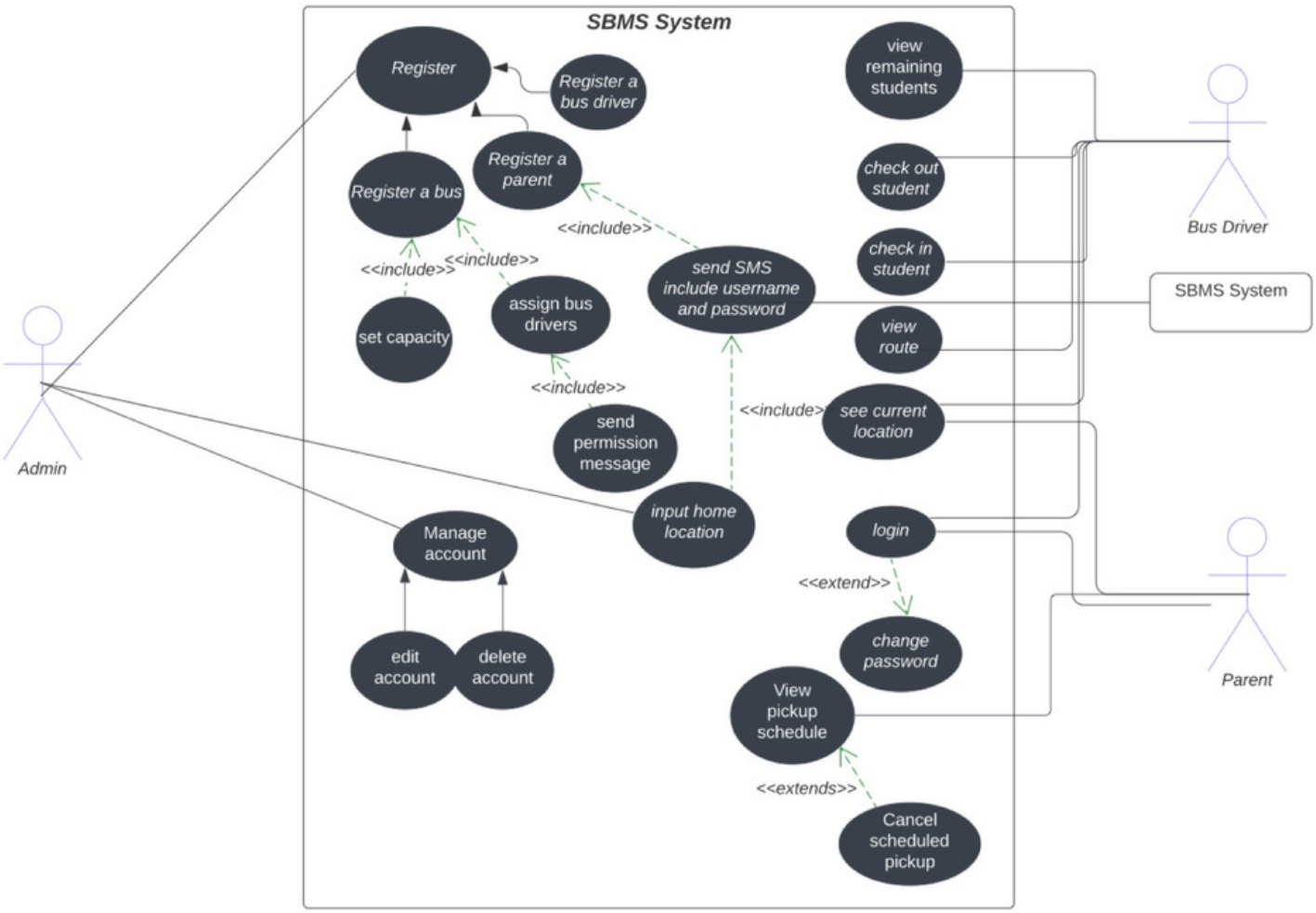
FUCTIONAL REQUIREMENTS

6. THE SBMS SYSTEM SHALL BE ABLE TO SEND AN SMS INCLUDING A UNIQUE USERNAME AND PASSWORD
7. A PARENT AND BUS DRIVER SHALL BE ABLE TO ACCESS THE SYSTEM USING USERNAME AND PASSWORD
8. PARENT AND BUS DRIVER SHALL BE ABLE TO CHANGE THEIR PASSWORD
9. THE ADMIN SHALL BE ABLE TO SET THE CAPACITY FOR EACH BUS
10. THE ADMIN SHALL BE ABLE TO ASSIGN BUS DRIVERS TO BUSES MANUALLY

NON-FUCTIONAL REQUIREMENTS

1. THE SYSTEM SHALL ALLOW 1000 USERS AT THE SAME TIME
2. THE SYSTEM SHALL BE AN IOS APP

USE-CASE DIAGRAM



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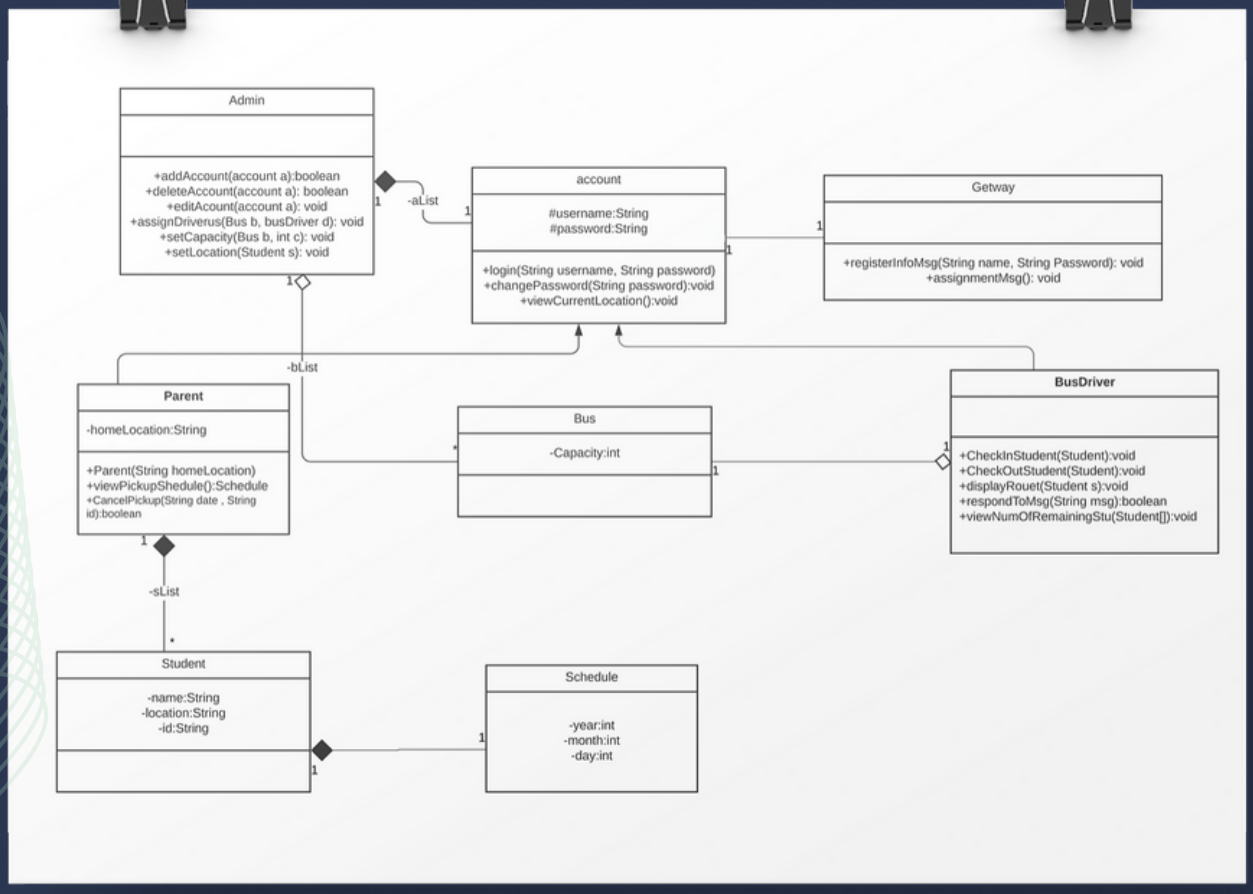
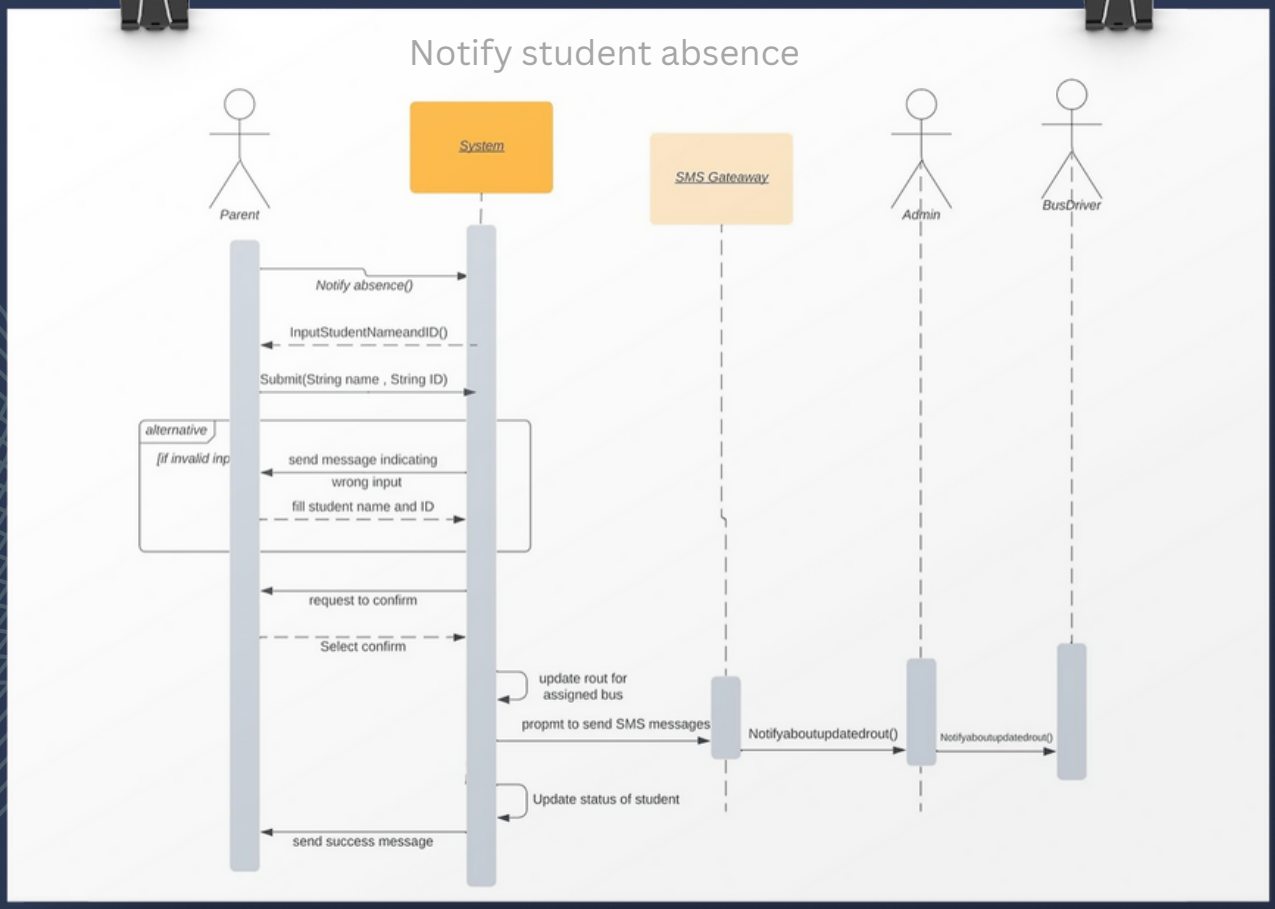
CLASS DIAGRAM



SEQUENCE DIAGRAM



MOCK-UP SCREENS