King Fahd University of Petroleum & Minerals
Department of Information and Computer Science

SWE 312: User Interface Design
Term 201
Instructor: Dr. Mahmood Niazi

Project: Web based pothole tracking and repair system (PHTRS)

Phase #1

Team #2

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A)   User analysis

User Characteristics	Citizen	General Manager	Repair Crew Member	Public Works Department Staff
Age	17+	35-60	18-45	25-60
Sex	Male/Female	Male/Female	Male/Female	Male/Female
Physical Limitations	None	None	None	None
Educational background	Highschool	Graduate	Highschool	Undergraduate
Computer/IT skills	Low	Medium	Low	Medium
Pain points / User requirements	Damage due to potholes	Unavailability of the staff or crew members	Faulty Equipment	System latency hinders verification of claims
Goals	To report potholes so that they get repaired	Prioritize repair of potholes by repair crew	To repair the assigned potholes	To execute the damage claims and send the cheque to the citizen
Language	English	English	English	English
Frequency of Use	Medium	High	High	High
Motivation to Use	Report potholes so that they can get it fixed in their area.	Distribute tasks efficiently to working staff and repair crew members	Report the potholes in time	Respond to the reports in time to make the citizens happy

B)   Task analysis

UC	Task	How frequently is the task carried out?	What kinds of skills or knowledge are needed?	Who is performing the task?	How long does it take to perform the task?	How difficult is the task?	How dangerous is the task?
1	Report information of potholes	Weekly	Basic smartphone knowledge	Citizen	10 minutes	Easy	Not dangerous
2	Assign repair jobs	Daily	Basic computer skills	General manager	5 minutes	Medium	Not dangerous
3	Generate damage file	Daily	Basic computer skills	Time	5 minutes	Medium	Not dangerous
4	Submit claim	Weekly	Able to use smartphone or computer to log-in to the account	Citizen	5 minutes	Medium	Not dangerous
5	Verify claim	Weekly	Basic computer skills	Public works department staff	< 1 hour	Medium	Not dangerous
6	Execute damage claim	Weekly	Basic computer skills	Public works department staff	< 1 hour	Medium	Not dangerous
7	Send cheque	Monthly	Accounting skills	Public works department staff	48 hours	Hard	Adequate danger, because of the risk of issuing the wrong amount of cash
8	Check progress of work	Weekly	Able to use smartphone or computer to log-in to the account	Citizen	5 minutes	Easy	Not dangerous
9	Send monthly progress report	Monthly	None	Time	< 1 hour	Easy	Not dangerous
10	Sort report	Daily	Basic sorting skill	General manager	< 1 hour	Easy	Not dangerous
11	Update information	Yearly	Able to use smartphone or computer to log-in to the account	Citizen	5 minutes	Easy	Not dangerous
12	Log in	Daily	Basic computer / smartphone skill	Everyone	1 minute	Easy	Not dangerous
13	Sign up	Daily	Basic computer / smartphone skill	Citizen	5 minutes	Easy	Not dangerous
14	Update repair status	Weekly	Basic computer / smartphone skills	Repair crew	5 minutes	Easy	Not dangerous

C) Use case model

Pothole Tracking and Repair System (PHTRS)
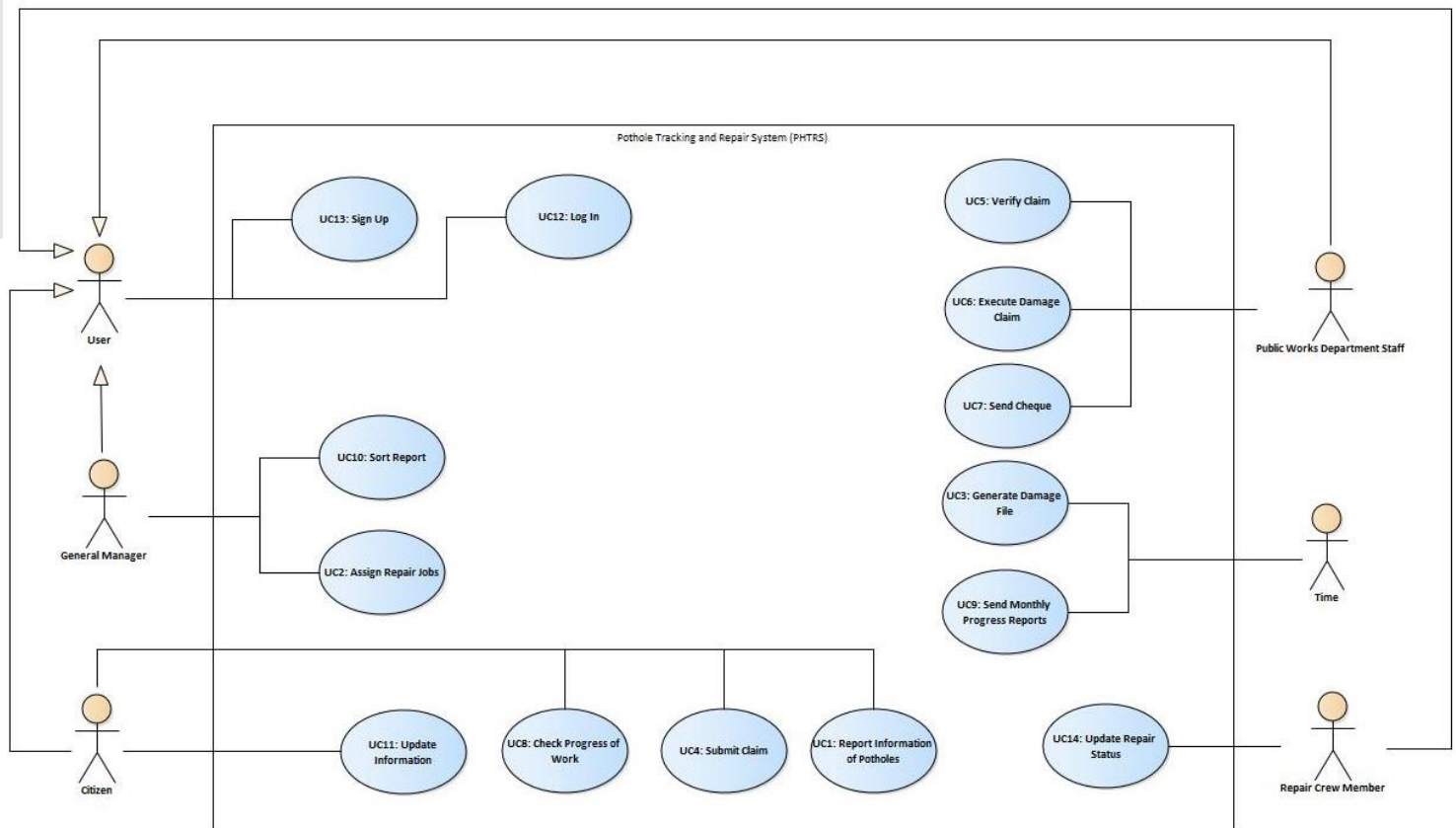
D) Use Cases

Use Case Number	UC1
Use Case Name	**Report Information of potholes**
Author/Source	Abdulrahman Abdulltif
Date of Creation	14/10/2020
Precondition(s)	The user must be signed in
Successful Post Condition	The user successfully reports the potholes
Actors	Citizen
Priority	High
Related Use Cases	UC12

Main Flow			
User Action		**System Response**	
UA1	The user clicks on report new potholes	SR1	The system displays the information that required to be filled
UA2	The user inputs the location and severity of the potholes	SR2	The system uploads the location into the system
UA3	The user submits the report	SR3	The system sends the report

Use Case Number	UC2	
Use Case Name	**Assign repair jobs**	
Author/Source	Abdulrahman Abdulltif	
Date of Creation	14/10/2020	
Precondition(s)	1- The user must be signed in 2-The citizen successfully reports the potholes	
Successful Post Condition	The jobs have been assigned	
Actors	General Manager	
Priority	High	
Related Use Cases	UC1	

Main Flow			
User Action		**System Response**	
UA1	The user clicks on Assign Repair Jobs	SR1	The system displays the potholes that need to be fixed
UA2	The user chooses the pothole to be repaired	SR2	The system displays the available Repair Crew members
UA3	The user chooses the members	SR3	The system processes the choices
UA4	The user presses the submit button	SR4	The system sends an email to the members

Use Case Number	UC3
Use Case Name	Generate damage file
Author/Source	Abdulrahman Abdulltif
Date of Creation	14/10/2020
Precondition(s)	1-The user must be signed in 2-The Citizen successfully reports the potholes 3- Repair jobs have been assigned by the general manager
Successful Post Condition	The file has been generated
Actors	Time
Priority	High
Related Use Cases	UC1, UC2, UC4, UC5, UC6, UC7, UC8, UC9, UC10

Main Flow			
User Action		**System Response**	
UA1	Time generates the damage file	SR1	The system logs the file and sends it

Use Case Number	UC4
Use Case Name	Submit Claim
Author/Source	Omar Pervez Khan
Date of Creation	16/10/2020
Precondition(s)	The user must be signed in
Successful Post Condition	Claim has been submitted
Actors	Citizen
Priority	High
Related Use Cases	UC5, UC6, UC7, UC12

Main Flow			
User Action		**System Response**	
UA1	The user selects the Submit Claim option	SR1	The system displays the report fields to be filled.
UA2	The user fills out the claim report.	SR2	The system makes the submit button available.
UA3	The user submits the report.	SR3	The system notifies the user that a claim has been submitted.
Alternative Flow 1: Incomplete Information			
A1.UA1	The user does not fill out all the required information in the claim report.	A1.SR1	The system notifies the user to fill out missing fields

Use Case Number	**UC5**
Use Case Name	**Verify Claim**
Author/Source	Omar Pervez Khan
Date of Creation	16/10/2020
Precondition(s)	1- The user must be signed in 2- The damage report corresponding to the claim must be reported
Successful Post Condition	Claim has been verified or declined.
Actors	Public Works Department Staff
Priority	High
Related Use Cases	UC4, UC6, UC7, UC12

Main Flow			
User Action		**System Response**	
UA1	The user selects the View Claims options.	**SR1**	The system displays the current pending claims.
UA2	The user selects a claim.	**SR2**	The system displays information about the claim.
UA3	The user views corresponding reported damage to the claim.	**SR3**	The system displays the corresponding reported damage.
UA4	The user accepts or declines the claim.	**SR4**	The system notifies the user and changes the status of the claim.

Use Case Number	UC6	
Use Case Name	**Execute Damage Claim**	
Author/Source	Omar Pervez Khan	
Date of Creation	16/10/2020	
Precondition(s)	1- The user must be signed in 2- Claim must be verified	
Successful Post Condition	Claim has been executed	
Actors	Public Works Department Staff	
Priority	High	
Related Use Cases	UC4, UC5, UC7, UC12	

Main Flow			
User Action		**System Response**	
UA1	The user selects the Execute Damage Claim option.	**SR1**	The system displays information about the claim
UA2	The user confirms verification of the claim	**SR2**	The system displays the status of verification of claim
UA3	The user executes the claim	**SR3**	The system notifies the user that the claim has been executed

Use Case Number	UC7
Use Case Name	**Send cheque**
Author/Source	Ali Al-Muslim
Date of Creation	15/10/2020
Precondition(s)	1- The user must be signed in 2- The damage claim has been executed
Successful Post Condition	Cheque is sent
Actors	1- Citizen 2- Public Works Department Staff
Priority	High
Related Use Cases	UC6, UC12

Main Flow			
User Action		**System Response**	
UA1	The user (Public Works Department Staff) clicks on "open a ticket".	**SR1**	The System notifies the citizen that the compensation request is approved.
UA2	The user specifies the amount of compensation in USD and record it in the ticket information.	**SR2**	The amount is saved by the system and tagged as "In progress".
UA3	The user writes a cheque and sends it by mail and changes the status from "in progress" to "sent".	**SR3**	The citizen is notified of the update in status.
UA4	The user closes the ticket after confirmation from citizen	**SR4**	Ticket's status is changed to "closed".

Use Case Number	UC8
Use Case Name	**Check progress of work**
Author/Source	Ali Al-Muslim
Date of Creation	16/10/2020
Precondition(s)	Pothole must be reported
Successful Post Condition	Repair status is shown on the screen
Actors	1- Citizen 2- Repair crew
Priority	Low
Related Use Cases	UC1, UC10, UC12

Main Flow			
User Action		**System Response**	
UA1	The user clicks on "check progress".	SR1	The System displays the status of the repair.
Alternative 1: Work did not start yet			
A1.UA1	The repair crew did not start working on the pothole.	A1.SR1	The system displays a message stating that the crew did not start working.

Use Case Number	UC9	
Use Case Name	**Send monthly progress report**	
Author/Source	Munther Alsayed	
Date of Creation	14/10/2020	
Precondition(s)	A month has passed since the last report	
Successful Post Condition	A monthly report is sent to the general manager	
Actors	Time	
Priority	Low	
Related Use Cases	UC1, UC2, UC4, UC5, UC6, UC7	
Main Flow		
User Action		**System Response**
UA1	Time generates the monthly progress report	**SR1** The system sends the progress report

Use Case Number	UC10
Use Case Name	Sort report
Author/Source	Munther Alsayed
Date of Creation	14/10/2020
Precondition(s)	Report has been sent to the General manager
Successful Post Condition	Report is displayed in the newly sorted way
Actors	General manager
Priority	Low
Related Use Cases	UC1, UC2, UC9, UC12

Main Flow			
User Action		**System Response**	
UA1	The user selects the reports	SR1	The system displays option for the selected reports
UA2	The user selects sort option	SR2	The system shows the sorting pattern
UA3	The user selects a pattern to sort the reports	SR3	The system displays a preview to the selected pattern
UA4	The user clicks on sort	SR4	The system sorts the reports

Use Case Number	UC11
Use Case Name	**Update information**
Author/Source	Munther Alsayed
Date of Creation	14/10/2020
Precondition(s)	User account already exists
Successful Post Condition	User information is updated
Actors	Citizen
Priority	Low
Related Use Cases	UC12, UC13

Main Flow			
User Action		**System Response**	
UA1	The user clicks profile	SR1	The system shows the user information
UA2	The user enters the new information	SR2	The system displays a preview of the new information
UA3	The user clicks update	SR3	The system updates user information
Alternative Flow 1			
A1.UA1	The user will enter information that does not meet the information requirement	A1.SR1	The system will reject the new information and display error message

Use Case Number	UC12
Use Case Name	Log in
Author/Source	Khalifa Alhomely
Date of Creation	14/10/2020
Precondition(s)	Internet connection, and user account already exists
Successful Post Condition	Logs user into the system
Actors	User
Priority	High
Related Use Cases	UC14

Main Flow			
User Action		**System Response**	
UA1	The user enters the website	SR1	The system asks the user to enter username and password
UA2	The user types the username and password	SR2	The system verifies the username and password
UA3		SR3	The system verifies the username and password
UA4		SR4	Display home page
Alternative Flow			
A1.UA1	The user enters invalid username	A1.SR1	The system shows an error message
A2.SR2	The user enters invalid password	A2.SR2	The system shows an error message

Use Case Number	**UC13**	
Use Case Name	**Sign up**	
Author/Source	Khalifa Alhomely	
Date of Creation	14/10/2020	
Precondition(s)	Internet connection	
Successful Post Condition	New account is created in the system	
Actors	User	
Priority	High	
Related Use Cases	UC13	
Main Flow		
User Action		**System Response**
UA1	The user enters the website	**SR1**	The system asks the user to log in or sign up a new account
UA2	The user chooses to sign up	**SR2**	The system shows the signing up page
UA3	The user enters their information	**SR3**	The system verifies the user information
UA4		**SR4**	The system asks the user to enter username and password
UA5	The user enters their username and password	**SR5**	The system verifies the username and password
UA6		**SR6**	The system displays a message that a new account has been made and ask the user to log in
Alternative Flow		
A1.UA1	The user enters an invalid information	**A1.SR1**	The system shows an error message
A2.SR2	The user enters an already existing username	**A2.SR2**	The system shows an error message
A3.SR3	The user enters invalid password	**A3.SR3**	The system shows an error message

Use Case Number	UC14
Use Case Name	Update Repair Status
Author/Source	Omar Pervez Khan
Date of Creation	16/10/2020
Precondition(s)	The user must be signed in
Successful Post Condition	Repair status is updated
Actors	Repair Crew
Priority	Medium
Related Use Cases	UC2, UC8, UC9

Main Flow			
User Action		**System Response**	
UA1	The user selects the Update Repair Status option	SR1	The system displays the list of current repair jobs
UA2	The user selects the repair job	SR2	The system displays the different status
UA3	The user changes the status	SR3	The system displays a preview of the status selected
UA4	The user confirms the selection	SR4	The system notifies the user that the status has been changed