

Shark Tracking for UML Class Project Assignment

SEN 986

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Under Guidance of Professor Donna Dulo

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A. <u>UML Class Diagram – 12 software Classes with Attributes and Methods</u>

1. Shark Class

2. User Class

+name: string
+email: string
-password: string

+login():void
+logout():void
+track():void

3. Researcher Class

<< external>> Researcher +name: string +email: string -password: string -emp_id:int -authenticate():void -addShark():void -deleteShark():void -deleteUser():void -deletefromDatabase():void +monitorSystem():void +uploadImages():void -printRecords():void -saveHistory():void -exportData():void

Figure 1 Software Classes in UML (1-3)

4. Sensor Class

<< boundary>>
Sensor

+is_present: boolean +type: string

-range: float

+getSpeed():int +getTempretaure: int +getDirection(x,y): int +getSalinity: int

5. Satellite Class

<< external device>>
Satellite

+id: int

+motion: string +inclination: string +time: date +location: string

+updateLocation():string +receiveData():void -sendDatatoLab():void

6. Database Manager Class

<< entity>> DBmanager

-name: string -version: int

-connection: boolean

+saveData():void +retrieveData():void +authenticateUser():void +executeQuery() +read():int +write():void

Figure 2 Software Classes in UML (4-6)

7. Database Server Class

<< entity>>
DBserver

+name: string -port: int

-stopThread: boolean -connection: boolean

-setServer():void

-run():void

-stopThread():boolean

-isConnected(): boolean

8. Web Server Class

<< entity>> Webserver

+inp_log: istream

+out_log: ostream

+operationQueue: string

+warning: string +requestId: int

-getOperation():void

-getTarget():void

-connectionReq():boolean

-getReferenceId():int

-setWarning():void

9. Graphical user Interface Class

<< boundary>>
GUI

+Exit_button: Jbutton

+search_button: Jbutton

+close_button: Jbutton

+result_list: Jlist

+search_criteria_textfield

:Jtextfield

+exit():void

+search():string

+displayResult():string

+clearScreen():void

+close():void

+refresh():void

Figure 3 Software Classes in UML (7-9)

10. Location Service Class

<< entity>> LocationService

+city: string +state: string +country: string +zipCode: int

+getcurrentLocation(x,y): int

+getCity(): string
+getState():string
+getCountry():string
+getZipcode():int

11. Mobile Web Service Class

<< software application>> MobileWebService

+url: string

+shark_type: string

+time: date

+getSharkProperty(): string +getSharkLocation(x,y): int +connectionReq():boolean +getLatestTime():date

12. Monitor System Class

<< internal>> MonitorSys

-status: boolean -frames: int

+connection: Boolean -systemLoad: int

+run():void

-stopThread():boolean

+openConnection():boolean +closeConnection(): boolean +checkPingToServer(): boolean

Figure 4 Software Classes in UML (10-12)

B. Conceptual Class Static Model Diagram

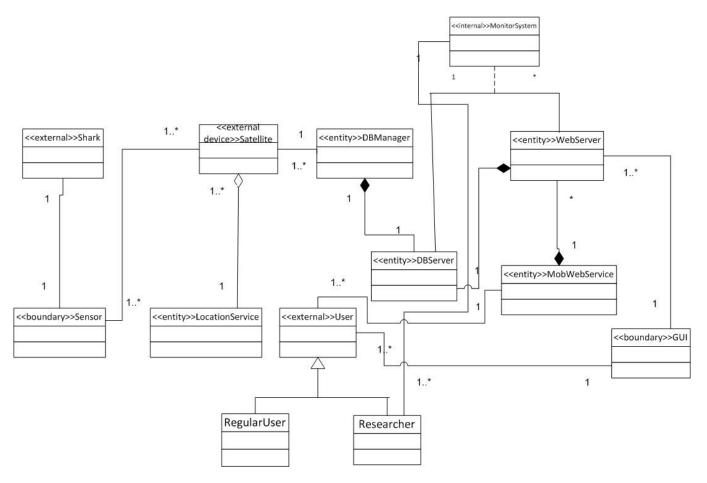
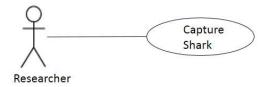


Figure 5 Conceptual Static Class Diagram

C. <u>UML Communication and Sequence Diagrams based on Use Case Diagrams</u>

Refer use case diagram in case study assignments

C.1 Communication and Sequence Diagram for UC-1.1



Communication Diagram for Above Use Case UC-1.1:

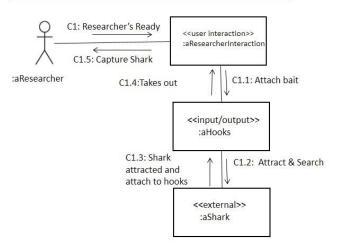


Figure 6 Communication Diagram UC-1.1

Sequence Diagram for Above Use Case UC-1.1:

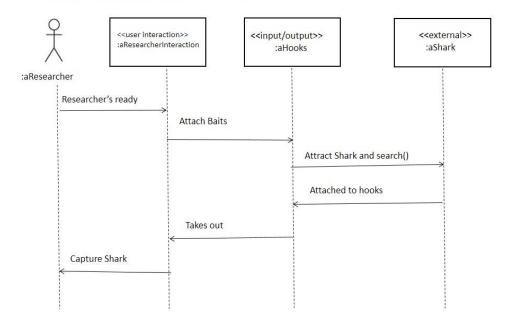


Figure 7 Sequence Diagram UC-1.1

C.2 Communication and Sequence Diagram for UC-1.2



Communication Diagram for Above Use Case UC-1.2:

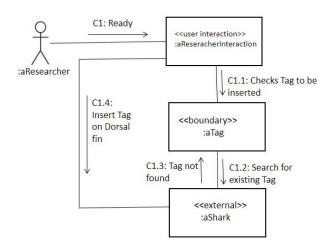


Figure 8 Communication Diagram UC-1.2

Sequence Diagram for Above Use Case UC-1.2:

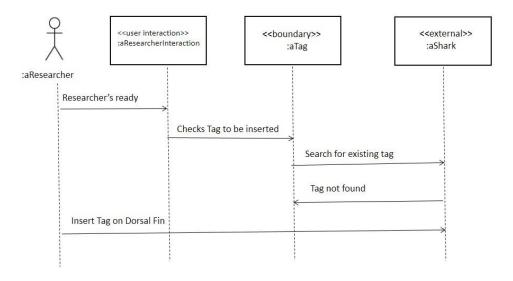
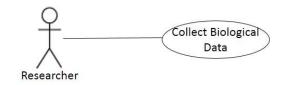


Figure 9 Sequence Diagram UC-1.2

C.3 Communication and Sequence Diagram for UC-1.3



Communication Diagram for Above Use Case UC-1.3:

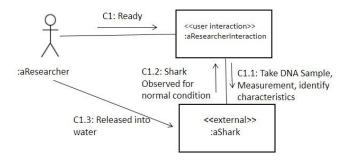


Figure 10 Communication Diagram UC-1.3

Sequence Diagram for Above Use Case UC-1.3:

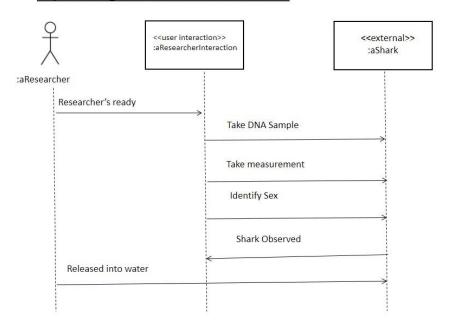
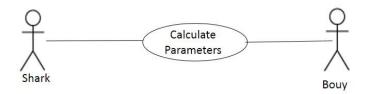


Figure 11 Sequence Diagram UC-1.3

C.4 Communication and Sequence Diagram for UC-1.4



Communication Diagram for Above Use Case UC-1.4:

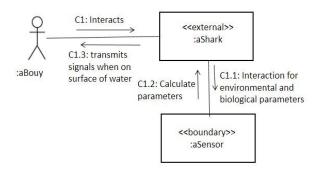


Figure 12 Communication Diagram UC-1.4

Sequence Diagram for Above Use Case UC-1.4:

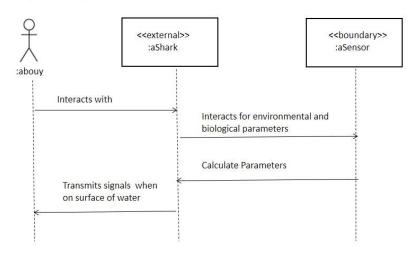


Figure 13 Sequence Diagram UC-1.4

C.5 Communication and Sequence Diagram for UC-1.5



Communication Diagram for Above Use Case UC-1.5:

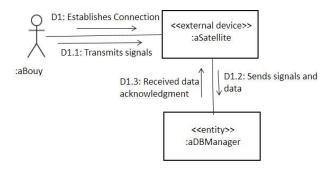


Figure 14 Communication Diagram UC-1.5

Sequence Diagram for Above Use Case UC-1.5:

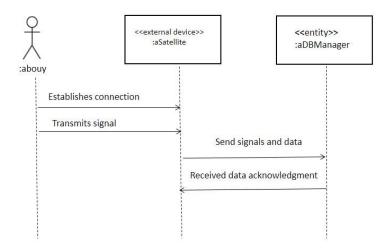
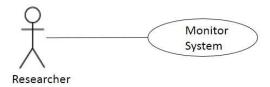


Figure 15 Sequence Diagram UC-1.5

C.6 Communication and Sequence Diagram for UC-2.1



Communication Diagram for Above Use Case UC-2.1:

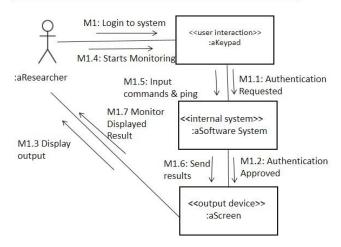


Figure 16 Communication Diagram UC-2.1

Sequence Diagram for Above Use Case UC-2.1:

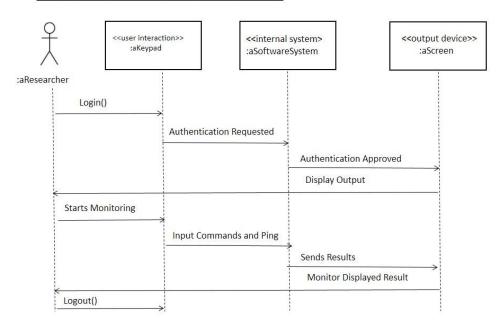
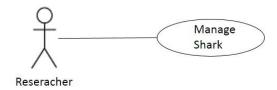


Figure 17 Sequence Diagram UC-2.1

C.7 Communication and Sequence Diagram for UC-2.2



Communication Diagram for Above Use Case UC-2.2:

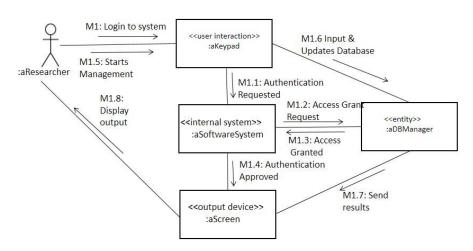


Figure 18 Communication Diagram UC-2.2

Sequence Diagram for Above Use Case UC-2.2:

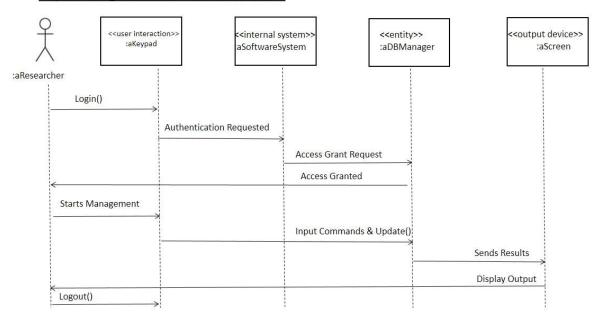
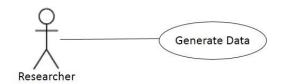


Figure 19 Sequence Diagram UC-2.2

C.8 Communication and Sequence Diagram for UC- 2.3



Communication Diagram for Above Use Case UC-2.3:

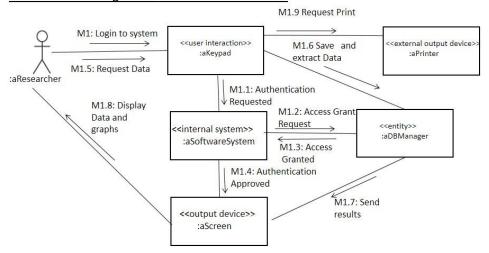


Figure 20 Communication Diagram UC-2.3

Sequence Diagram for Above Use Case UC-2.3:

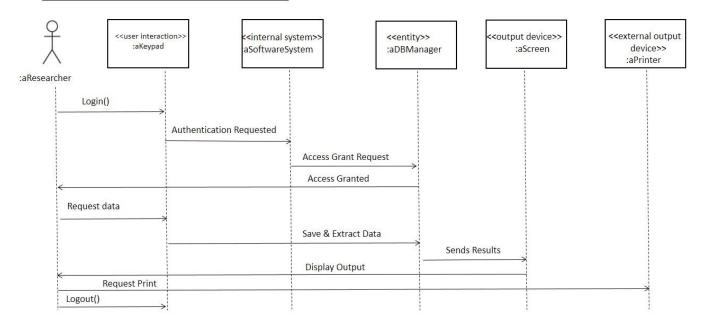


Figure 21 Sequence Diagram UC-2.3

C.9 Communication and Sequence Diagram for UC-2.4



Communication Diagram for Above Use Case UC-2.4:

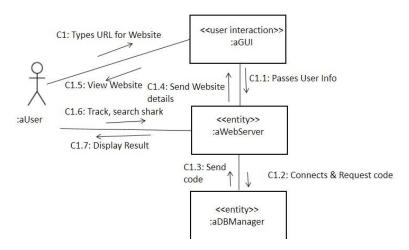


Figure 22 Communication Diagram UC-2.4

Sequence Diagram for Above Use Case UC-2.4:

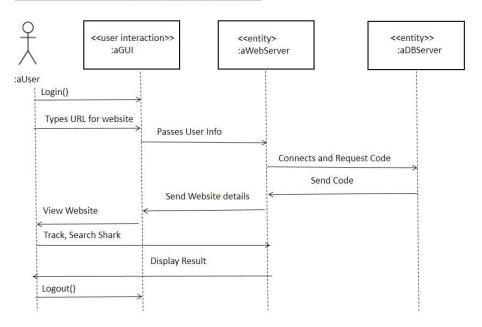
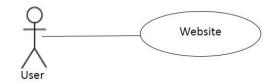


Figure 23 Sequence Diagram UC-2.4

C.10 Communication and Sequence Diagram for UC-2.5



Communication Diagram for Above Use Case UC-2.5:

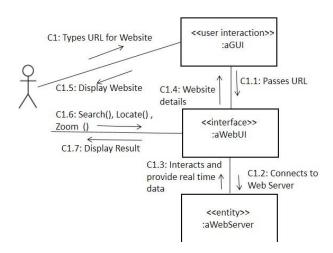


Figure 24 Communication Diagram UC-2.5

Sequence Diagram for Above Use Case UC-2.5:

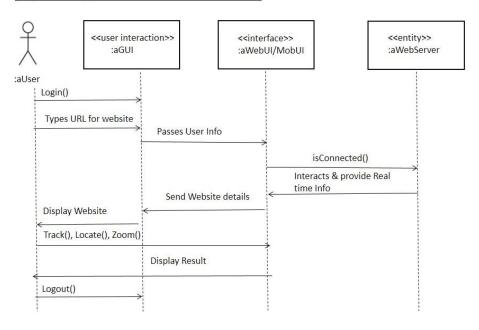


Figure 25 Sequence Diagram UC-2.5