

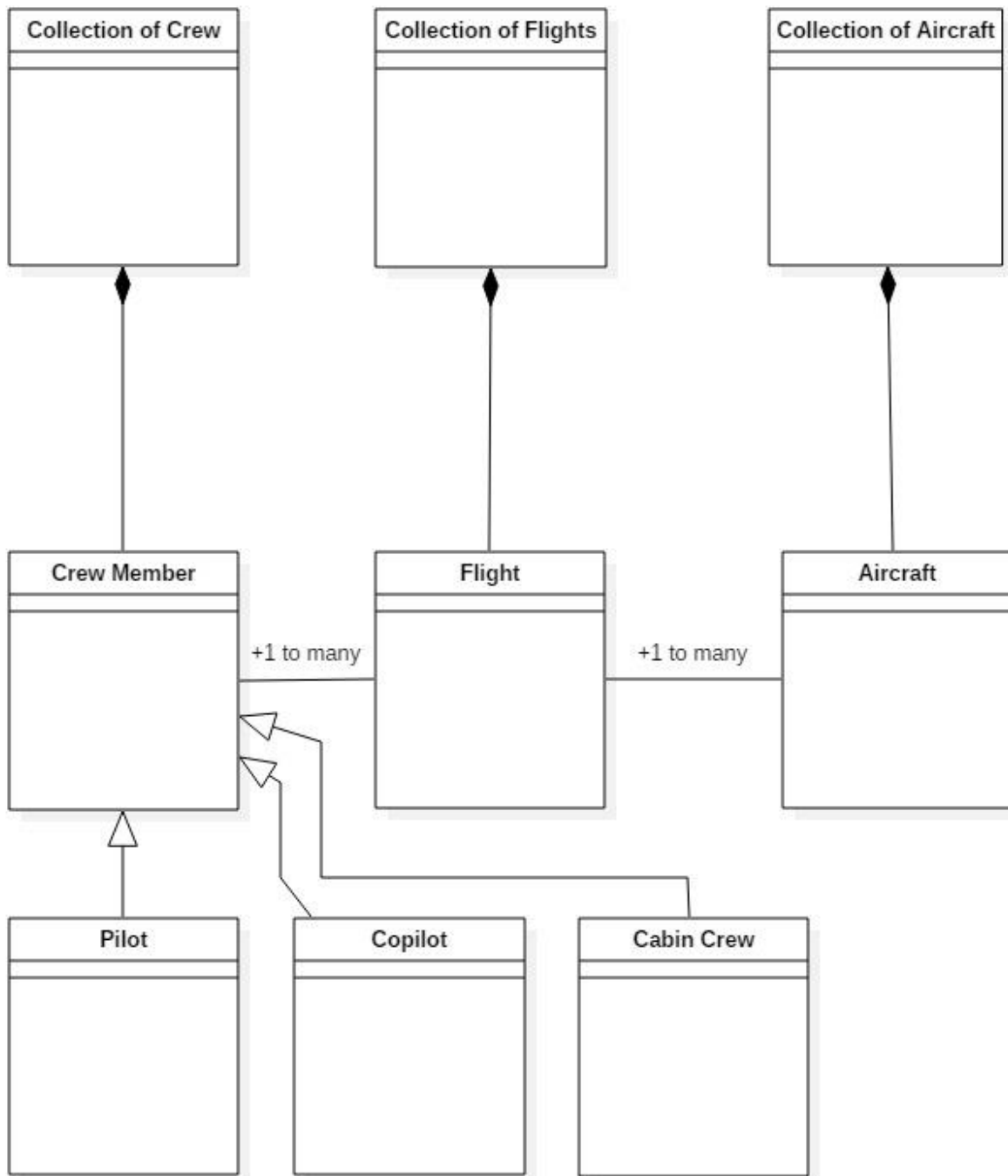
Read Ballew

Homework Five

CSCE 1040

Mean Green Airlines UML Design

Class Diagram Showing Relationships



Individual Class Diagrams

Derived Classes of Crew Type

Collection of Crew
+int crewCount +vector of crew members
+add() +edit() +delete() +search() +printAll() +printDetails() +save() +load()

Pilot
+string rating +double hoursFlown
+pilot() +getHoursFlown() +getRating() +setHoursFlown() +setRating() +lilTimmyDropTablePRINT() +saving() +editRating() +editHoursFlown()

Crew Member
+string name +int id +string type +string status
+defaultCrew() +setName() +getName() +setId() +getId() +setType() +getType() +setStatus() +getStatus()

Copilot
+string rating +double hoursFlown
+copilot() +getHoursFlown() +getRating() +setHoursFlown() +setRating() +lilTimmyDropTablePRINT() +saving() +editRating() +editHoursFlown()

LilTimmyDropTable
+string position
+lilTimmyDropTable() +getPos() +setPos() +lilTimmyDropTablePRINT() +saving() +editPosition()

Individual Class Diagrams

Collection of Flights
+int flightCount +vector of flights
+add() +edit() +delete() +search() +printAll() +save() +load()

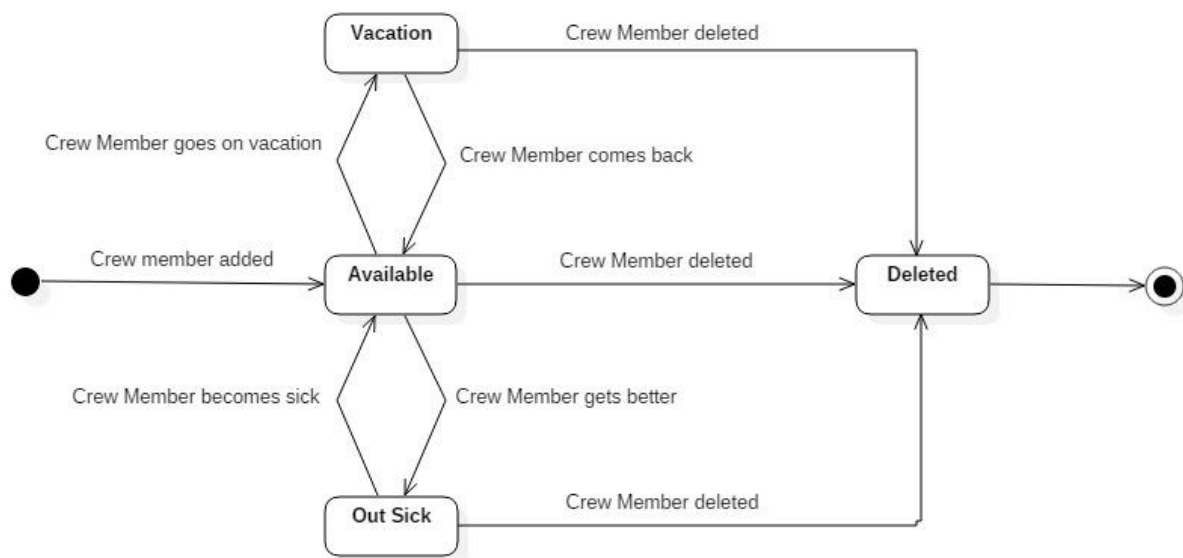
Collection of Aircrafts
+int craftCount +vector of aircrafts
+add() +edit() +delete() +search() +printAll() +printDetails() +save() +load()

Flight
+string tailnum +int pilotID +int copilotID +int crewID1 +int crewID2 +int crewID3 +string startDate +string endDate +string startCode +string endCode +int numCattle +string status
+defaultFlight() +setTailNum() +getTailNum() +setPilotID() +getPilotID() +setCoPilotID() +getCoPilotID() +setCrewOneID() +getCrewOneID() +setCrewTwoID() +getCrewTwoID() +setCrewThreeID() +getCrewThreeID() +setStartDate() +getStartDate() +setStartCode() +getStartCode() +setEndCode() +getEndCode() +setNumCattle() +getNumCattle() +setStatus() +getStatus()

Aircraft
+string make +int model +string tailnum +int seats +string range +string status
+defaultAircraft() +setMake() +getMake() +setModel() +getModel() +setTailNum() +getTailNum() +setSeats() +getSeats() +setRange() +getRange() +setStatus() +getStatus()

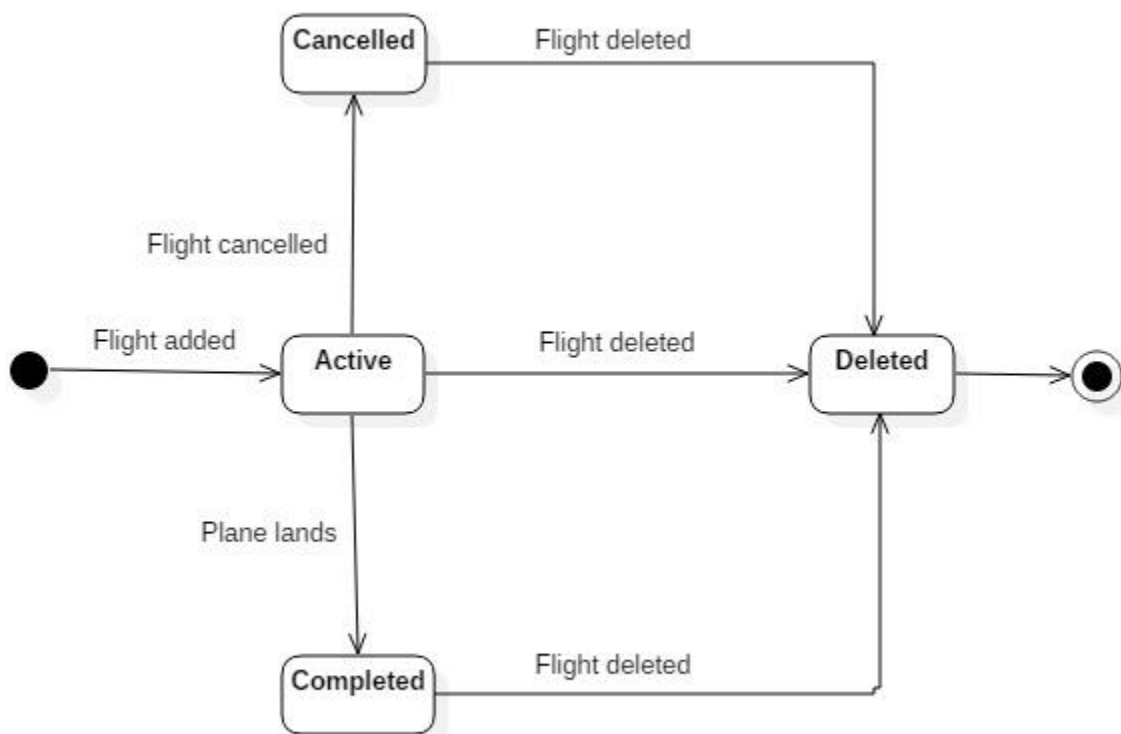
State Diagram (1 of 3)

Main Menu



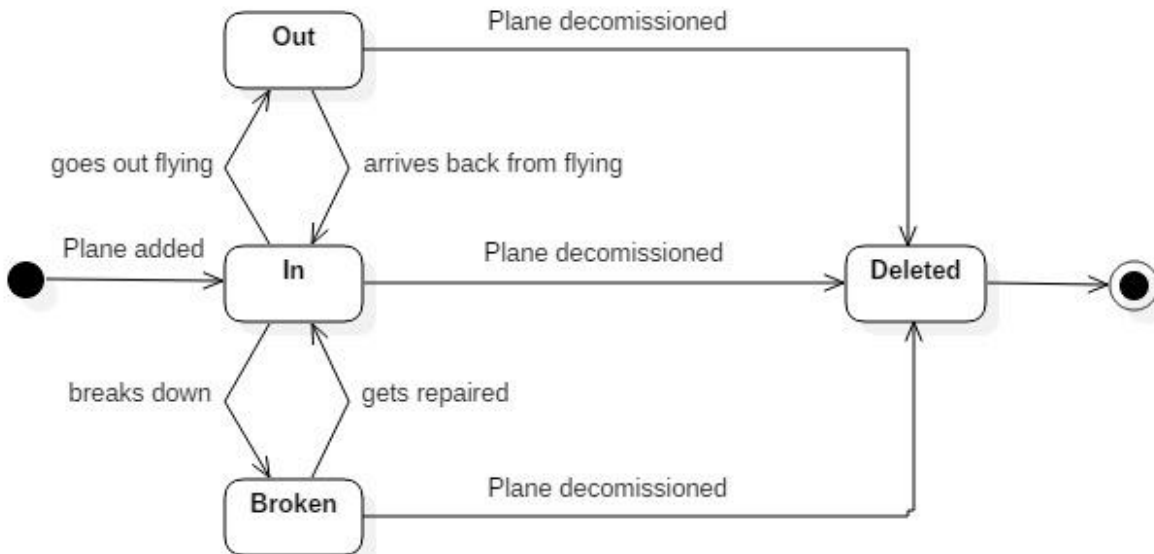
State Diagram (2 of 3)

Crew Menu



State Diagram (3 of 3)

Flight Menu



Step by Step Algorithms

Collection of Data Management Functions

Add

- Receives user input
- Data placed into an object in a vector

Edit

- Receives user input
- Cycle through vector
- Change data user input to be changed when data matches

Delete

- Receives user input
- Cycle through vector
- Delete when data matches

Search/Find

- Receives user input
- Cycle through vector until data matches

Print a list of all

- Cycle through vector
- Print every object inside

Print details for a single entity

- Cycle through vector
- Print the current object when the data matches

Save

- Reads through the list of currently existing objects
- Prints the current object in a file named apt to the definition (e.g. crew.txt, aircraft.txt, & flight.txt)

Load

- Reads in input from the saved file from Save
- Creates new instances of everything

Step by Step Algorithms

Airport Functions

Default Constructors

- Sets all attribute to a default state

Crew Member Functions

Set Name

- Takes one string
- Sets attribute equal to string input

Get Name

- Returns name string

Set ID

- Takes one integer
- Set attribute equal to integer input

Get ID

- Returns ID integer

Set Type

- Takes one string
- Sets attribute equal to string input

Get Type

- Returns type string

Set Status

- Takes one string
- Sets attribute equal to string input

Get Status

- Returns status string

Aircraft Functions

Set Make

- Takes one string
- Sets attribute equal to string input

Get Make

- Returns make string

Set Model

- Takes one integer
- Set attribute equal to integer input

Get Model

- Returns model integer

Set Tail Number

- Takes one string
- Sets attribute equal to string input

Get Tail Number

Flight Functions

Set Tail Number

- Takes one string
- Sets attribute equal to string input

Get Tail Number

- Returns tail number string

Set Pilot ID

- Takes one integer
- Set attribute equal to integer input

Get Pilot ID

- Returns pilot ID integer

Set Co-Pilot ID

- Takes one integer
- Set attribute equal to integer input

Get Co-Pilot ID

- Returns copilot ID integer

Set Crew ID 1

- Takes one integer
- Set attribute equal to integer input

Get Crew ID 1

- Returns crew ID 1 integer

Set Crew ID 2

- Takes one integer
- Set attribute equal to integer input

Get Crew ID 2

- Returns crew ID 2 integer

Set Crew ID 3

- Takes one integer
- Set attribute equal to integer input

Get Crew ID 3

- Returns crew ID 3 integer

Set Start Date

- Takes one string
- Sets attribute equal to string input

Get Start Date

- Returns start date string

Set End Date

- Takes one string
- Sets attribute equal to string input

Get End Date

- Returns end date string

Set Start Code

- Returns tail number string

Set Seats

- Takes one integer
- Sets attribute equal to integer input

Get Seats

- Returns seats integer

Set Range

- Takes one string
- Sets attribute equal to string input

Get Range

- Returns range string

Set Flight Status

- Takes one string
- Sets attribute equal to string input

Get Flight Status

- Returns flight status string

- Takes one string

- Sets attribute equal to string input

Get Start Code

- Returns start code

Set End Code

- Takes one string
- Sets attribute equal to string input

Get End Code

- Returns end code

Set Number of Passengers

- Takes one integer
- Set attribute equal to integer input

Get Number of Passengers

- Returns number of passengers integer

Set Flight Status

- Takes one string
- Sets attribute equal to string input

Get Flight Status

- Returns flight status string

Derived Classes Functions

Default Constructors

- Sets all attribute to a default state

lilTimmyDropTablePRINT

- Virtual function that calls the base virtual function
- Prints out specific data from derived class

Saving

- Virtual function that calls the base virtual function
- Outputs specific data from derived class into a file

Edit Position/Rating/Hours Flown

- Virtual function that calls the base virtual function
- Changes the data in the derived class protected data

Pilot & Copilot

Set Rating

- Takes one string
- Sets attribute equal to string input

Get Rating

- Returns rating string

Set Hours Flown

- Takes one double
- Sets attribute equal to double input

Get Hours Flown

- Takes one double
- Sets attribute equal to double input

LilTimmyDropTable

Set Position

- Takes one string
- Sets attribute equal to string input

Get Position

- Returns position string

Report on UML Design

The homework 5 design was a remarkably easy update, once I figured out the correct syntax. The hardest part was completing the inheritance diagrams, once I figured out the correct syntax, it was much easier to fill in the chart and shape it to explain inheritance of derived classes. The easiest part, that seemed a little pedantic, was the algorithms for the 'sets and gets'. I didn't learn much from that part at all, but I understand its requirement to complete this type of assignment. I need to review the distinct types of inheritance related diagrams and the 'sub' categories they can fall into, but other than that, writing designs for a program comes easily to me. Completing the assignment on time was a simple feat.

Homework 5 Report

The homework 5 inheritance update was interesting. It had a lot of editing functions that already existed in Crew, which once I figured out the correct syntax for, was easy. The primary concern was the syntax for inheritance was getting the add, edit, save, load, etc. function to accept the virtual function calls to the member functions in the derived classes. It was the most intense coding experience I have had yet, and is also my greatest coding accomplishment thus far.