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Homework 3 – Design

CSCE 1040

Classes:

1. main
2. Plane
3. PlaneCollection
4. CrewMember
5. CrewMemberCollection
6. Flight
7. FlightCollection

main.cpp

1. handles menu interactions

2. creates and stores Plane, CrewMember, and Flight objects.

3. Stores those objects in their respective containers.

Flight.cpp

1. Has a plane object that it gets access to (pointer)

2. Has crew members that it gets access to (pointers)

3. Manages all other flight data

Plane.cpp

1. Tracks a planes data

a. Make

b. Model

c. Tail Number

d. Number of seats

e. Range

f. Status

FlightCollection.cpp

1. Stores the flight objects

2. Can find flights based on id

3. Can find flights based on index

4. Ability to print data about flight members

CrewMemberCollection.cpp

1. Stores the crew member objects

2. Can find crew members based on name or id

3. Can find crew by index

4. Ability to print data about crew members

PlaneCollection.cpp

1. Stores the plane objects

2. Can find planes based on make and model, tail number, number of seats, and range

3. Can find planes by index

4. Ability to print data about planes

main.cpp

CoPilot.cpp

Cabin.cpp

Pilot.cpp

CrewMember.cpp

1. Tracks a crew members data

a. Name

b. ID

c. Type

d. Status

1. Prints the menu
   1. add crew
   2. add plane
   3. add flight
   4. print crew member (by some sort of identification)
   5. print all crew
   6. print plane (by some sort of identification)
   7. print all planes
   8. print current flights
   9. print future flights
   10. print past flights
   11. print all flights
2. Parse user input
3. Execute specified command

FlightCollection.cpp

Attributes:

1. vector<Flight>

Methods:

1. addFlight(Flight)
   1. adds the passed in flight to the flight vector
2. findFlight(by ID)
   1. iterates through the flight vector and returns the pointer to the flight that matches the id
3. findFlight(by index)
   1. returns the pointer to the flight at the given index
4. deleteFlight(by ID)
   1. iterates through the flight vector and deletes the flight that matches the id
5. printFlights()
   1. iterates through the flights and prints each with data

Flight.cpp

Attributes:

1. Plane ID
2. Pilot ID
3. CoPilot ID
4. Crew IDs for 3
5. Start Date/Time
6. End Date/Time
7. Starting Airport Code
8. Ending Airport Code
9. Number of Passengers
10. Status

Methods:

1. getPlaneID()
2. getPilotID()
3. getCoPilotID()
4. getCrewID()
   1. returns a string containing Crew ID’s delimited by commas
5. getStart()
6. setStart()
7. getEnd()
8. setEnd()
9. getStartAirportCode()
10. setStartAirportCode()
11. getEndAirportCode()
12. setEndAirportCode()
13. getNumberOfPassengers()
14. addPassenger()
    1. increments the number of passengers by one if plane isn’t full
15. getStatus()
16. setStatus()
17. checkIfFlightPossible(Plane pointer, 5 crew pointers, start and end)
    1. checks the plane to confirm that the plane is available and has enough seats
    2. checks if the crew are the correct type (pilot, co-pilot etc)
18. printData()
    1. prints the flights data in a formatted way

CrewMemberCollection.cpp

Attributes:

1. vector<CrewMember>

Methods:

1. addCrewMember()
2. getCrewMember(by name)
   1. iterates through the crew member vector and returns the pointer to the crew member that matches the name
3. getCrewMember(by id)
   1. iterates through the crew member vector and returns the pointer to the crew member that matches the id
4. getCrewMember(by index)
   1. returns the pointer to the crew member at the given index
5. deleteCrewMember(by name)
   1. iterates through the crew member vector and deletes the crew member that matches the name
6. deleteCrewMember(by id)
   1. iterates through the crew member vector and deletes the crew member that matches the name
7. printCrewMembers()
   1. iterates through the crew member vector and prints the info for each

CrewMember.cpp

Attributes:

1. Name
2. ID number
3. Type
4. Status
5. Active Assignment

Methods:

1. getName()
2. setName()
3. getID()
4. setID()
5. getType()
6. setType()
7. getStatus()
8. setStatus()
9. getActiveAssignment()
10. setActiveAssignment()
11. printInfo()
    1. prints the info for the crew member in a formatted output

PlaneCollection.cpp

Attributes:

1. vector<Plane>

Methods:

1. addPlane()
2. getPlane(by make and model)
   1. iterates through the plane vector and returns the pointer to the plane that matches the given make and model
3. getPlane(by tail number)
   1. iterates through the plane vector and returns the pointer to the plane that matches the given tail number
4. getPlane(by index)
   1. returns the pointer to the plane at the given index
5. deletePlane(by make and model)
   1. iterates through the plane vector and deletes the plane that matches the make and model
6. deletePlane(by tail number)
   1. iterates through the plane vector and deletes the plane that matches the tail number
7. printPlanes()
   1. iterates through the planes vector and prints the info for each

Plane.cpp

Attributes:

1. Make
2. Model
3. Tail Number
4. Number of Seats
5. Range
6. Status
7. Active Assignment

Methods:

1. getMake()
2. setMake()
3. getModel()
4. setModel ()
5. getTailNumber()
6. setTailNumber()
7. getNumberOfSeats()
8. setNumberOfSeats()
9. getRange()
10. setRange()
11. getStatus()
12. setStatus()
13. getActiveAssignment()
14. setActiveAssignment()
15. printInfo()
    1. prints the info for the plane in a formatted output