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## Atlantic Technological University

### Mock Examinations 2024/2025

<b>MODULE:</b>	COMP07105 – Rich Application Development 301
<b>PROGRAMME(S):</b>	
SG_KGADV_B07	BACHELOR OF SCIENCE IN COMPUTING IN GAMES DEVELOPMENT
SG_KSODV_B07	BACHELOR OF SCIENCE IN COMPUTING IN SOFTWARE DEVELOPMENT
SG_KCMPU_B07	BACHELOR OF SCIENCE IN COMPUTING
SG_KSODV_H08	BACHELOR OF SCIENCE (HONOURS) IN COMPUTING IN SOFTWARE DEVELOPMENT
SG_KCMPU_H08	BACHELOR OF SCIENCE (HONOURS) IN COMPUTING
<b>YEAR OF STUDY:</b>	3rd
<b>EXAMINERS:</b>	Dr. Dominic Carr (Internal) Ms. Eileen Jackson (External)
<b>TIME ALLOWED:</b>	2 Hours
<b>INSTRUCTIONS:</b>	<p><b>This is an open book exam. You may use any resources at your disposal. The use of AI is not acceptable.</b></p> <p><b>Create a PRIVATE GitHub repo (titled RADEXAM2024) for this examination, and add myself (dominiccarr) as a collaborator. After each part of a question is complete commit and push the changes as your ID + part name (e.g. S99999999 Part 1a). You must submit a supporting video explaining your work within 12 hours of the exam.</b></p>

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The use of programmable or text storing calculators is expressly forbidden.

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There are no additional requirements for this paper.

**Question 1 - Initial Setup** (5 marks)

- (a) 1. In your lab solution create the project structure as shown in Figure 1.
- 2. Run the MVC App to show the Default Page.

(5 marks)

**Question 2 - Class Library** (30 marks)

- (a) In the class library project create a set of Entity Framework code first classes that will support the data presented in the tables. In the console app create a Database Context class called FlightContext. (10 marks)
- (b) Add constraints such that the maximum length of the passport number field should be 7, Name and passport number are required fields, Ticket Type is an enum, and ticket cost must be more than 5 euro. (10 marks)
- (c) Add a migration called initial-migration-SXXXXXXXXX where SXXXXXXXXX is your college ID. Update the database. Seed the data presented in the tables to the database. (10 marks)

**Question 3 - Console App** (25 marks)

- (a) Write a method called list\_passengers(int FlightID) that will create an instance of the flight Context and print out a list of all the passenger names, Ticket Types and Destinations of the flight indicated by the parameter FlightID that are in the Database. LINQ must be used. (10 marks)
- (b) Write a method called list\_flight\_revenue() that will create an instance of the Flight Context and print out a list of all the Flight Numbers, destinations and Departure Date together the total revenue for each flight. LINQ must be used (15 marks)

**Question 4 - The MVC App** (40 marks)

- (a) Create a CRUD scaffold for the flights model (5 marks)
- (b) Make it so that when viewing an individual flight you can see which passengers are booked on the flight. (10 marks)
- (c) Make it so that when you are viewing an individual passenger you can see a listing of flights they have booked on. You should be able to click on the flight to see it's details page. (10 marks)

- (d) On the passenger details page include a calculation of how much they have spent on flights. (5 marks)
- (e) Create a controller which will allow you to book a passenger onto a flight for a fee which you can manually enter. (10 marks)

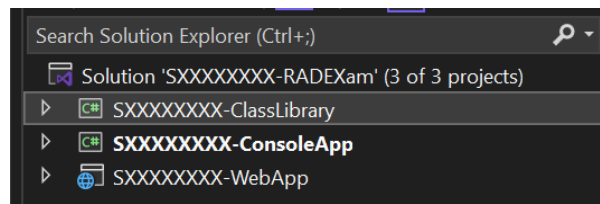


Figure 1: Solution and project structure

Flight ID	Flight Number	Departure Date	Origin	Destination	Country	Max Seats
1	IT-001	12/01/2025 22:00	Dublin	Rome	Italy	110
2	EN-002	12/01/2025 22:00	Dublin	London	England	110
3	FR-001	12/01/2025 22:00	Dublin	Paris	France	120
4	BE-001	12/01/2025 22:00	Dublin	Brussels	Belgium	88
5	DU-001	12/01/2025 22:00	London	Dublin	Ireland	110

Table 1: Flights

Passenger ID	Name	Passport Number
1	Fred Farnell	P010203
2	Tom McManus	P896745
3	Bill Trimble	P231425
4	Freda McDonald	P235678
5	Mary Malone	P214587
6	Tom McManus	P893482

Table 2: Passengers

Passenger ID	Flight ID	Ticket Type	Ticket Cost	Baggage Charge
1	2	Economy	51.83	30
2	2	First Class	127	10
3	3	First Class	140	10
4	4	Economy	50	15
5	1	Economy	69	15
6	5	First Class	127	10

Table 3: Passenger Bookings