



INDEPENDENT UNIVERSITY, BANGLADESH (IUB)  
School of Engineering, Technology & Sciences  
Department of Computer Science & Engineering (CSE)  
**CSC/CSE Program (Undergraduate)**



Summer 2022

## Progressive Term Project

I. Course Code and Title

**CSC 101: Introduction to programming**

II. Credit

**4 (3 + 1) (3 hours of theory and 2 hour of Lab per week)**

III. Nature

**Core Course**

IV. Prerequisite

**Entry Level Course**

V. Tutorial Hour

**3 hours / week / section**

VI. Days

**Thursday and Saturday**

Students are required to carry out this term project progressively keeping alignment with the weekly content covered. The faculty will assist the students in understanding the problem and so that they can leverage their earned knowledge up to the given point to progress with the solution.

The problem is segmented along the weekly content / topic covered and students are guided to apply their understanding on the learned content to come up with the solution for that week.

Faculties must ask the students to maintain one project file (in google colab) which will be shared with the faculty. Students contribution / progress should be tracked through that project file and graded accordingly.

## Project Definition: Airport Check-In

Using your programming knowledge to solve a real-life software development project progressively.

### Description of the problem:

When a person travels by air he or she needs to collect boarding pass from the check-in counter of the airline. But before collecting the boarding pass the person needs to check in all the luggage following certain rules and regulation from the airline the person will be travelling on. There are certain limits like the number of luggage a person can carry and the amount of weight each person is entitled to.

### Weekly Task Breakdown

#### Tasks No

#### Part of the Problem Definition

- 1     The first task is to give a name of the software. The name should be unique. We all know name of the software is the first thing a person notices even before using the software. So, create a unique name to the software that you are going to make for the scenarios described in the problem above.
  - Name the software.
  - Think and list what are the rules and tasks a person needs to follow to get the boarding pass.
- 2     **(Topic: Variables)**

Try to identify all the information that you need to collect and store for this software and write down their name. To store these information, you need variables. List all the variables (give then representative names) and write comments to explain what their data types will be.
- 3     **(Topic: Condition & Decision Making)**

Suppose you are a passenger, and you are traveling to Dubai from Bangladesh with QATAR Airways. When you reached the airport and went to the check in counter, the Airline staff asked you the following questions.

  - i.     *What is your name and ticket number?*
  - ii.    *What is your destination?*

*If you are not going to Dubai, then the staff will tell you to contact the help desk as you are in the wrong counter.*

How you will handle this condition checking and decision making with your program. Write appropriate code to mirror this situation.

4 **(Topic: Loop)**

Suppose there are 25 passengers present in the queue for checking for destination. The airline staff is trying to check the same in 3 with all the 25 passengers.

What will be the efficient way to mirror the above situation i.e., to get the name of all the 25 passengers? Explain why with example.

5 **(Topic: Condition and calculation)**

*If your destination is Dubai then the airline staff will ask you for following information and make decision accordingly.*

*How many bags do you have?*

- i. If number of bags is upto 2 then you don't need to pay any extra fees.*
- ii. If you have more than 2 bags then you are over the weight limit. You need to pay 200 USD for each additional bag.*
- iii. After getting clearance with the luggage, he / she will get the boarding pass.*

Update your program from 3 to ask the passenger for number of bags. Take it as input and inform the passenger whether he / she is (a) Overlimit or not, (b) If over limit, then calculate the total amount he has to pay for the extra luggage, (c) take the amount that he has to pay for extra luggage, (d) finally, while the due is cleared handover the boarding pass (print the passenger name, destination, seat number).

6 **(Topic: List)**

After boarding the plane a security person comes and asks the airline staff about various kinds of information regarding the passenger boarded on the business class.

Create a 2D list of all the 25 passengers that boarded on the business class that has the attributes name, age, address, profession.

Also explain why python 2D list was created instead of python 1D list.

7 **(Topic: Function)**

Convert / update your code written in 5 with functions. Write three functions that will perform the three tasks listed in 5 and call them within your program to perform the same.

Also Write a function to perform the task in 6.

8 **(Topic: File)**

Create a file named "passengerinfo.txt" and store all the 25 passengers' information in the file. Write two functions, named storeinfo() and readinfo() to write passenger data to the file and read it back in the 2D list and display them.

9 **(Report writing)**

Implement the full project in google colab. Name the project with your "id\_section.ipynb". Give a title to the project, write your name, id and section. Write a shot note detailing what this program does. Comment each part of your code that will explain what that specific part of your code does.

Print the report and submit.