

# CS-1004 | Object-oriented Programming | Spring 2023

National University of Computer and Emerging Sciences

## Practice Problems [Set 1]

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1. Consider a scenario where you have to make an application for managing an airport. Which of the following are NOT useful objects (entities):
  - a. Person
  - b. Car
  - c. Airplane
  - d. Book
  - e. Pilot
  - f. Student
  - g. Department
  - h. Passenger
2. What are the five objects you can think of in an application/program to manage a Bank? List them down and write their attributes (variables) and behaviors (functions).
3. If "Person" is an Object. How many attributes for this entity can you think of?
4. Read the following scenario carefully and list down object(s) with their attribute(s)/behavior(s) and then also write them in the form of C++ code:

*"A company has several employees with each of them having a unique employee ID. Other attributes of interest of these employees are name, date of birth, salary and designation. The employees perform some data collection activity each day. There are several offices of this company on different locations. Each of these offices have a set number of employees and an allocated budget. And the boss has three pet cats and he often brings them to the office."*

**Note:** You can also try to write parameterized constructors for this problem.

5. In order to issue loans, your application must keep track of customer details including their first name, last name, NIC#, permanent address, current city, annual income and also whether the customer is a tax filer or not. Every customer is going to have a different NIC#, but the NIC# will remain the same for each individual customer. The bank has several branches across the country and each of these branches are identified by their city, & also contain a branch code and are managed by a branch supervisor. Furthermore, different branch can offer loans to their customers at different interest rates, however, only one interest rate is used by each branch. The interest rate can either be 1.5%, 2.0% or 3.5%. Write a C++ program for this scenario.