# Assignment 2

# Total Marks=20

1. A small parking lot allows cars to be parked in a single lane that is narrow and dead-ended. The first car that enters is parked near the exit gate. If a car wants to leave, all cars parked before it must be temporarily moved out and then placed back in the same order. Write a Java program using an array to simulate this parking system. The program should support **[Marks =3+4+3=10]**:

    a. park(carNumber) – to park a car.
    b. remove(carNumber) – to remove a car (while handling temporary moves).
    c. **display()** – to display the current order of cars. [Marks = 4 + 3 + 3 = 10]

    **Test case:**

    - park(101), park(102), park(103), park(104)
    - remove(102)-> take out 103, 104, remove 102. Keep 103, 104 back (104, 103, 101)
    - park(105)

2. At an amusement park, people line up for a roller coaster ride. The ride takes **exactly 3 people at a time** from the front of the line. After every ride, the next 3 people in the line get their turn, and so on. Write a Java program that:

    join(visitorId) → a person joins the line,
    ride() → remove the first 3 people from the queue (or fewer if fewer are left),
    display() → show the current line.

    Use arrays only. Time complexity must not exceed **O(n)**. **[Marks = 1 + 4 = 5]**

3. Write a Java program that takes an integer array from the user and then allows the user to perform the following operations using a menu with the following options **[Marks = 2 + 2 + 1 = 5]**
   A. Find the average of all elements
   B. Find the second largest element in the array
   C. Count how many times a given number appears in the array