**-------Task1--------**

**Problem Statement:** Elevator Configuration

Every Elevator runs based on certain rules predefined. So, Here we will be doing the same.

There is an 10 Stories Building.

Elevator should be configured based on 2 use cases

1. First come First Server.

2. Nearest Floor Serve First

**Example for use case 2**: Person 1 Standing at Floor 1 requests for the elevator service first.

Person 2 from floor 8 requests for the elevator service second

Person 3 from floor 3 request for the elevator service third.

Elevator is at floor 0.

Now Elevator should receive Person 1 first Person 3 second and Person 2 at the last.

**Example for Scenario 1**: 4 People entered elevator from floor 5.

Person 1: Requests to go at floor 3

Person 2: Requests to go at floor 6

person 3: Requests to go at floor 10

person 4: Requests to go at floor 1

**------Task2-------**

**Problem Statement: ATM**

Consider an ATM with which we withdraw our cash. Now inside the atm, bank guys keep the notes like 2000\*5,500\*10,200\*20,100\*50. Write a program using **recursion** which takes the amount input from the user and gives the output in the format.

**Example**: User enters the amount as 300, Output will be “Amount Debited: 200 – 1, 100 -1 “

And also it should give no of notes in the atm ex: “After transaction 2000 notes – 100, 500 notes – 50 , 200 notes – 4 , 100 notes – 2 “.

**Input 1**: Enter Denomination of notes , Ex1: No. of 2000 notes = 100,Ex2: No. of 500 notes =50 etc.. , same for all other denominations

**Input 2:** Amount a user wants to debit

**Output:**   Denomination and No. of notes received by user after transaction,

**Example:** Transaction of INR 2600

**Denomination**: 2000x1,500x1,200x0,100 x1

**Note**: ATM should dispense notes according to amount entered and it should choose the notes efficiently. For example, if user asks for 8000 and no of 2000 notes in atm are only 4…then program should not dispense all of 2000 notes. It can do 2000X2 , 500X4 …like wise. The program should look into how many notes are there, and what is the best denomination to dispense.

**------Task3------**

**PartA:** Creating a Website by choosing a random template

**PartB:** Creating the website for the template which is provided

**-----Task4------**

**Problems.**

1. Write a function that merges two unsorted lists into a new sorted list

2. Copy text file to another text file

3. Write a function to remove duplicates from an array

4. Find the missing number in a given integer array of 1 to 100

5. Move all zeros in a number to the end using a linked list(Ex: 1034035 ---> 1343500)

**-----Task5------**

**Problem Statement:**

Best Time to Buy and Sell Stock

Say you have an array for which the ith element is the price of a given stock on day i.

If you were only permitted to complete at most one transaction (i.e., buy one and sell one share of the stock),

design an algorithm to find the maximum profit.

Note that you cannot sell a stock before you buy one.

**Example 1:**

**Input:** [7,1,5,3,6,4]

**Output:** 5

**Explanation**: Buy on day 2 (price = 1) and sell on day 5 (price = 6), profit = 6-1 = 5.

Not 7-1 = 6, as selling price needs to be larger than buying price.

**Example 2:**

**Input:** [7,6,4,3,1]

**Output:** 0

**Explanation:** In this case, no transaction is done, i.e. max profit = 0.

**------Task6-----**

**Crud Operations**

Actions:

* Add : Adding a new entry for an Employee
* Edit : Editing the details of an Existing Employee
* Delete : Deleting the record of a particular Employee from the Data Set / Table
* View : View all the details of Employees in a structured Format.

All the input fields should be Validated.

**-----Task7------**

**Learn and document the understanding in own words**

1.How does dataset work, Alternative for Dataset.

2.How datasets work.

3.How does Array work with Memory

4.How does ArrayList work with Memory

5.Array VS ArrayList

6.Understanding about memory working with Array and collection objects

7.How does Garbage collector work with Array/ArrayList/Dictonary and how is memory freed of an object and what is the process

8.Connection of Garbage Collector with Threding proces.

9.How garbadge collector works with multiple threads

10. what do you think why Time and space complexity is important explain it  with an own example

**----Task8----**

Given an integer n, break into  the sum of k positive integers, and return the maximum product of those integers.

**Input:** Integer n

**Desired Output:**

Maximum product of numbers whose sum is n.

**Example 1:**

n=5;

5 can be written as sum of following numbers.

Possible Sums:

1.            1+1+1+1+1,

2.            1+4,

3.            1+1+3,

4.            1+1+1+2,

5.            2+3,

6.            1+2+2.....etc

Product of these integers:

1.            1\*1\*1\*1\*1=1,

2.            1\*4=4,

3.            1\*1\*3=3,

4.            1\*1\*1\*2=2

5.            2\*3=6,

6.            1\*2\*2=4.....etc

Output returned should be maximum product which in the above case is 6.

**Example 2:**

n=10;

Desired Output : 36

Integers : 3,3,4 or 3,3,2,2