Practical - 1

(A)

Aim :- Program to find sum of elements in an array.

Description :- Algorithm for sum of elements in an array.

1) Create an empty variable. (sum)
2) Initialize it with 0 in a loop.
3) Traverse through each element (or get each element from the user) add each element to sum.
4) Print sum.

Code :-

```
lst = []

num = int(input("Enter the size of the array:"))

print("Enter array elements:")

for n in range(num):

    numbers = int(input())
```

```
lst.append(numbers)

print("Sum:", sum(lst))
```

OUTPUT :-

```
Enter the size of the array: 5
Enter array elements:
4
8
12
16
20
Sum: 60
```

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(B)

Aim :- Program to find minimum or maximum element in an array.

Description :- Algorithm for finding minimum and maximum element in an array.

1) Declare the max and min variables and check for the array size:
2) If odd, initialize min and max to the first element.
3) If even, compare the elements and set min to the smaller value and max to the larger value.
4) Now traverse the array and pick elements in pairs. For each pair (i, i+1), compare both elements. On the basis of comparison:
5) Compare the larger element with max and update max.
6) Compare the smaller element with min and update min.
7) Store max and min in an extra memory maxMin[2] and return it.

Code :-

```
# Minimum Function
def getMin(lst, n):
    res = lst[0]
    for i in range(1, n):
        res = min(res, lst[i])
    return res
# Maximum Function
def getMax(lst, n):
    res = lst[0]
    for i in range(1, n):
        res = max(res, lst[i])
    return res
lst = []
num = int(input("Enter the size of the array:"))
print("Enter array elements:")
for i in range(num):
    numbers = int(input())
    lst.append(numbers)
n = len(lst)
print("Minimum element of array:", getMin(lst,n))
print("Maximum element of array:", getMax(lst,n))
```

OUTPUT :-

```
Enter the size of the array: 3
Enter array elements:
444
2345
654
Minimum element of
Maximum element of array: 2345
```

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(C)

Aim :- Python3 program to count number of even and odd elements in an array.

Description :- Algorithm for counting number of even and odd elements in an array.

1) Input the number of elements of the array.
2) Input the array elements.
3) Initialize count_odd = count_even = 0.
4) Traverse the array and increment count_odd if the array element is odd, else increment count_even.
5) Print count_odd and count_even.

Code :-

```
def countingEvenOdd(lst, arr_size):
    even_count = 0
    odd_count = 0
    for i in range(arr_size):
        if(lst[i] % 2 == 0):
            even_count += 1
        else:
            odd_count += 1
    print("Number of even elements =", even_count)
```

```
    print("Number of odd elements =", odd_count)
lst = []
num = int(input("Enter the size of the array:"))
print("Enter array elements:")
for i in range(input())
for i in range(num):
    numbers = int(input())
    lst.append(numbers)
    n = len(lst)
coutingEvenOdd(lst, n)
```

OUTPUT :-

```
Enter the size of the array: 5
Enter array elements:
2
10
15
19
23
Number of even elements = 2
Number of odd elements = 3
```