Question 1: Rat Count House

(Asked in Accenture OnCampus 10 Aug 2021, Slot 1)

Problem Description :

The function accepts two positive integers ‘r’ and ‘unit’ and a positive integer array ‘arr’ of size ‘n’ as its argument ‘r’ represents the number of rats present in an area, ‘unit’ is the amount of food each rat consumes and each ith element of array ‘arr’ represents the amount of food present in ‘i+1’ house number, where 0 <= i

Note:

- Return -1 if the array is null
- Return 0 if the total amount of food from all houses is not sufficient for all the rats.
- Computed values lie within the integer range.

Example:

Input:

- r: 7
- unit: 2
- n: 8
- arr: 2 8 3 5 7 4 1 2

Output:

4

Explanation:

Total amount of food required for all rats = r * unit

= 7 * 2 = 14.

The amount of food in 1st houses = 2+8+3+5 = 18. Since, amount of food in 1st 4 houses is sufficient for all the rats. Thus, output is 4.

```
#include<bits/stdc++.h>
using namespace std;

int calculate (int r, int unit, int arr[], int n)
{
    if (n == 0)
        return -1;

    int totalFoodRequired = r * unit;
    int foodTillNow = 0;
    int house = 0;

    for (house = 0; house < n; ++house)
    {
        foodTillNow += arr[house];
        if (foodTillNow >= totalFoodRequired)
            {
            break;
        }
    }
    if (totalFoodRequired > foodTillNow)
        return 0;
    return house + 1;
}

int main ()
{
    int r;
    cin >> r;
    int unit;
    cin >> unit;
    int n;
    cin >> n;
    int arr[n];

    for (int i = 0; i < n; ++i)
    {
        cin >> arr[i];
    }
    cout << calculate (r, unit, arr, n);
    return 0;
}
```

Question 2:

(Asked in Accenture OnCampus 10 Aug 2021, Slot 2)

Problem Description :

The Binary number system only uses two digits, 0 and number system can be called binary string. You are required to implement the following function:

int OperationsBinaryString(char* str);

The function accepts a string str as its argument. The string str consists of binary digits eparated with an alphabet as follows:

- – A denotes AND operation
- – B denotes OR operation
- – C denotes XOR Operation

You are required to calculate the result of the string str, scanning the string to right taking one opearation at a time, and return the same.

Note:

- No order of priorities of operations is required
- Length of str is odd
- If str is NULL or None (in case of Python), return -1

Input:

str: 1C0C1C1A0B1

Output:

1

Explanation:

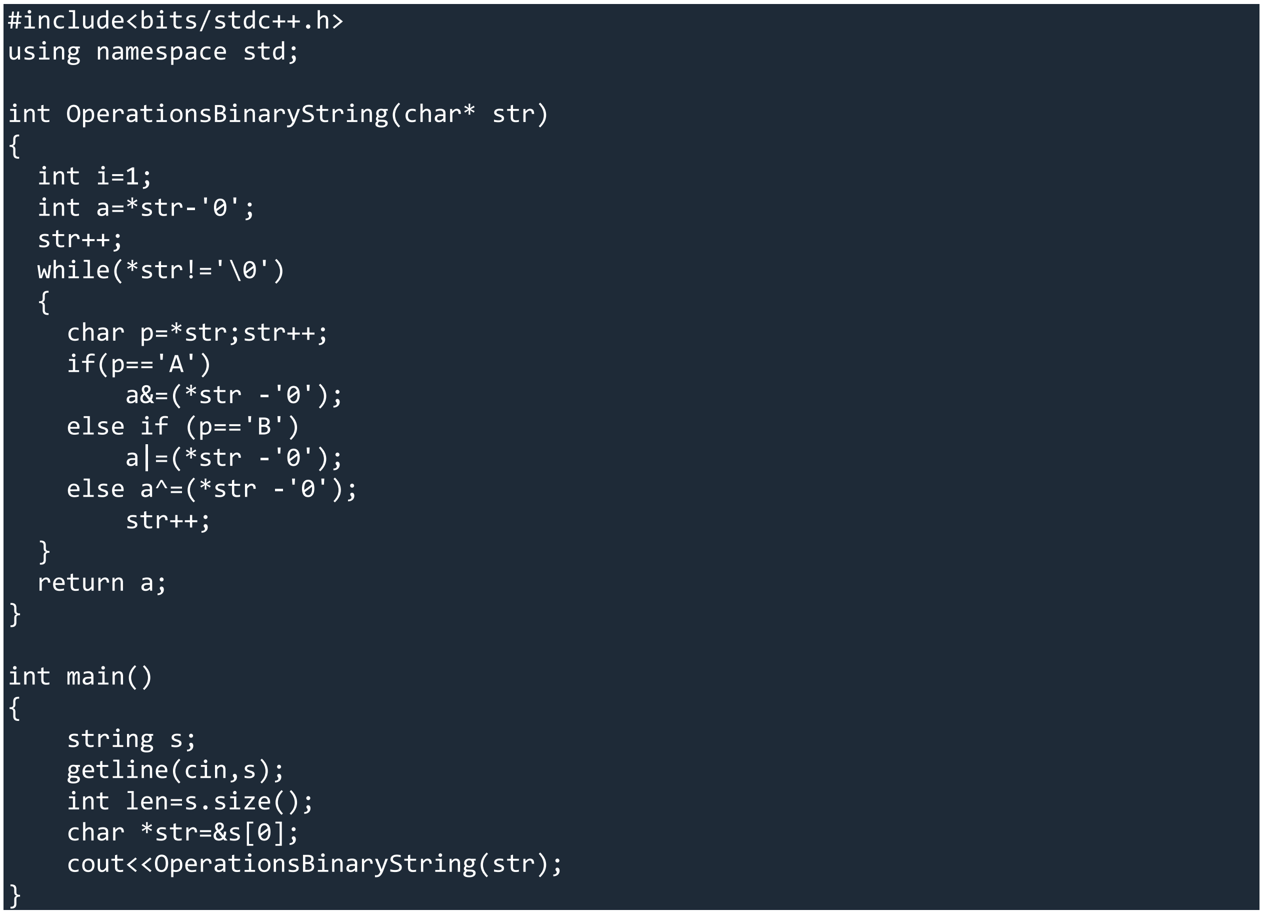
The alphabets in str when expanded becomes “1 XOR 0 XOR 1 XOR 1 AND 0 OR 1”, result of the expression becomes q, hence 1 is returned.

Sample Input:

0C1A1B1C1C1B0A0

Output:

0



```
#include<bits/stdc++.h>
using namespace std;

int OperationsBinaryString(char* str)
{
  int i=1;
  int a=*str-'0';
  str++;
  while(*str!='\0')
  {
    char p=*str;str++;
    if(p=='A')
        a&=(*str -'0');
    else if (p=='B')
        a|=(*str -'0');
    else a^=(*str -'0');
        str++;
  }
  return a;
}

int main()
{
    string s;
    getline(cin,s);
    int len=s.size();
    char *str=&s[0];
    cout<<OperationsBinaryString(str);
}
```

Question 3: Password Checker

(Asked in Accenture OnCampus 10 Aug 2021, Slot 3)

You are given a function.

int CheckPassword(char str[], int n);

The function accepts string str of size n as an argument. Implement the function which returns 1 if given string str is valid password else 0.

str is a valid password if it satisfies the below conditions.

- – At least 4 characters
- – At least one numeric digit
- – At Least one Capital Letter
- – Must not have space or slash (/)
- – Starting character must not be a number

Assumption:

Input string will not be empty.

Example:

Input:

aA1_67

Output:

1

Sample Input:

a987 abC012

Output:

0

C++
python
Java

```
#include<bits/stdc++.h>
using namespace std;

int CheckPassword(char str[],int n)
{
   //At least 4 characters
   if(n<4) return 0;

   //Starting character must not be a number
   if(str[0]-'0'>=0 && str[0]-'0'<=9) return 0;

   int a=0,cap=0,nu=0;
   while(a<n)
   {
       //Must not have space or slash (/)
       if(str[a]==' ' || str[a]=='/') return 0;

       //counting capital letters
       if(str[a]>=65&&str[a]<=90) {cap++;}

       //counting numeric digit
       else if(str[a]-'0'>=0 && str[a]-'0'<=9) nu++;

       //incrementing for while loop
       a++;
   }
   // returns 1 if there are > 0 numeric digits and capital letters
   return cap>0 && nu>0 ;
}

int main()
{
    string s;
    getline(cin,s);
    int len=s.size();
    char *c=&s[0];
    cout<<CheckPassword(c,len);
}
```

Question 4:

(Asked in Accenture OnCampus 11 Aug 2021, Slot 1)

You are given a function,

int findCount(int arr[], int length, int num, int diff);

The function accepts an integer array ‘arr’, its length and two integer variables ‘num’ and ‘diff’. Implement this function to find and return the number of elements of ‘arr’ having an absolute difference of less than or equal to ‘diff’ with ‘num’.

Note: In case there is no element in ‘arr’ whose absolute difference with ‘num’ is less than or equal to ‘diff’, return -1.

Example:

Input:

- arr: 12 3 14 56 77 13
- num: 13
- diff: 2

Output:

3

Explanation:

Elements of ‘arr’ having absolute difference of less than or equal to ‘diff’ i.e. 2 with ‘num’ i.e. 13 are 12, 13 and 14.

C++
python
Java

```
#include<bits/stdc++.h>
using namespace std;

int findCount(int n, int arr[], int num, int diff) {
    int count = 0;
    for (int i = 0; i < n; ++i)
    {
        if (abs(arr[i] - num) <= diff)
        {
            count++;
        }
    }
    return count > 0 ? count : -1;
}
int main() {
    int n;
    cin >> n;
    int arr[n];
    for (int i = 0; i < n; ++i) {
        cin >> arr[i];
    }
    int num; cin >> num;
    int diff; cin >> diff;
    cout << findCount(n, arr, num, diff);
}
```

Question 5 :

(Asked in Accenture OnCampus 11 Aug 2021, Slot 2)

Implement the following Function

def differenceofSum(n. m)

The function accepts two integers n, m as arguments Find the sum of all numbers in range from 1 to m(both inclusive) that are not divisible by n. Return difference between sum of integers not divisible by n with sum of numbers divisible by n.

Assumption:

- n>0 and m>0
- Sum lies between integral range

Example

Input

n:4

m:20

Output

90

Explanation

- Sum of numbers divisible by 4 are 4 + 8 + 12 + 16 + 20 = 60
- Sum of numbers not divisible by 4 are 1 +2 + 3 + 5 + 6 + 7 + 9 + 10 + 11 + 13 + 14 + 15 + 17 + 18 + 19 = 150
- Difference 150 – 60 = 90

Sample Input

n:3

m:10

Sample Output

19

Python
C
Java

```
n = int(input())
m = int(input())
sum1 = 0
sum2 = 0
for i in range(1,m+1):
    if i % n == 0:
        sum1+=i
    else:
        sum2+=i
print(abs(sum2-sum1))
Input:
```

```
3
10
Output:
19
```

Question:6

(Asked in Accenture OnCampus 11 Aug 2021, Slot 3)

You are required to implement the following Function

def LargeSmallSum(arr)

The function accepts an integers arr of size ’length’ as its arguments you are required to return the sum of second largest largest element from the even positions and second smallest from the odd position of given ‘arr’

Assumption:

- All array elements are unique
- Treat the 0th position a seven

NOTE

- Return 0 if array is empty
- Return 0, if array length is 3 or less than 3

Example

Input

arr:3 2 1 7 5 4

Output

7

Explanation

- Second largest among even position elements(1 3 5) is 3
- Second largest among odd position element is 4
- Thus output is 3+4 = 7

Sample Input

arr:1 8 0 2 3 5 6

Sample Output

8

Python
C
Java

```
length = int(input())
arr = list(map(int, input().split()))
even_arr = []
odd_arr = []
for i in range(length):
    if i % 2 == 0:
        even_arr.append(arr[i])
    else:
        odd_arr.append(arr[i])
even_arr = sorted(even_arr)
odd_arr = sorted(odd_arr)
print(even_arr[len(even_arr)-2] + odd_arr[len(odd_arr)-2])
Input:
7
1 8 0 2 3 5 6
Output:
8
```

Question:7

(Asked in Accenture OnCampus 12 Aug 2021, Slot 1)

Implement the following Function

def ProductSmallestPair(sum, arr)

The function accepts an integers sum and an integer array arr of size n. Implement the function to find the pair, (arr[j], arr[k]) where j!=k, Such that arr[j] and arr[k] are the least two elements of array (arr[j] + arr[k] <= sum) and return the product of element of this pair

NOTE

- Return -1 if array is empty or if n<2
- Return 0, if no such pairs found
- All computed values lie within integer range

Example

Input

sum:9

Arr:5 2 4 3 9 7 1

Output

2

Explanation

Pair of least two element is (2, 1) 2 + 1 = 3 < 9, Product of (2, 1) 2*1 = 2. Thus, output is 2

Sample Input

sum:4

Arr:9 8 3 -7 3 9

Sample Output

-21

Python
C
Java

```
n = int(input())
sum1 = int(input())
arr = list(map(int, input().split()))
if n < 2:
    print('-1')
arr = sorted(arr)
for i in range(n-1):
    if arr[i] + arr[i+1] < sum1:
        print(arr[i] * arr[i+1])
        break
else:
    print('0')
Input:
6
4
9 8 3 -7 3 9
Output:
-21
```

Question:8

(Asked in Accenture OnCampus 12 Aug 2021, Slot 2)

N-base notation is a system for writing numbers that uses only n different symbols, This symbols are the first n symbols from the given notation list(Including the symbol for o) Decimal to n base notation are (0:0, 1:1, 2:2, 3:3, 4:4, 5:5, 6:6, 7:7, 8:8, 9:9, 10:A,11:B and so on upto 35:Z)

Implement the following function

Char* DectoNBase(int n, int num):

The function accept positive integer n and num Implement the function to calculate the n-base equivalent of num and return the same as a string

Steps:

1. Divide the decimal number by n,Treat the division as the integer division
2. Write the the remainder (in n-base notation)
3. Divide the quotient again by n, Treat the division as integer division
4. Repeat step 2 and 3 until the quotient is 0
5. The n-base value is the sequence of the remainders from last to first

Assumption:

1 < n < = 36

Example

Input

n: 12

num: 718

Output

4BA

Explanation

num	Divisor	quotient	remainder
718	12	59	10(A)
59	12	4	11(B)
4	12	0	4(4)

Sample Input

n: 21

num: 5678

Sample Output

CI8

Python
Java
C++

```
n = int(input())
num = int(input())
reminder = []
quotient = num // n
reminder.append(num%n)
while quotient != 0:
    reminder.append(quotient%n)
    quotient = quotient // n
reminder = reminder[::-1]
equivalent = ''
for i in reminder:
    if i > 9:
        a = i - 9
        a = 64 + a
        equivalent+=chr(a)
    else:
        equivalent+=str(i)
print(equivalent)
Input:
21
5678
Output:
CI8
```

Question:9

(Asked in Accenture Offcampus 1 Aug 2021, Slot 1)

Implement the following functions.a

char*MoveHyphen(char str[],int n);

The function accepts a string “str” of length ‘n’, that contains alphabets and hyphens (-). Implement the function to move all hyphens(.) in the string to the front of the given string.

NOTE:- Return null if str is null.

Example :-

- **Input**:
  - str.Move-Hyphens-to-Front
- **Output:**
  - -MoveHyphenstoFront

Explanation:-

The string “Move-Hyphens -to-front” has 3 hyphens (.), which are moved to the front of the string, this output is “— MoveHyphen”

Sample Input

- Str: String-Compare

Sample Output-

- -StringCompare

Python
Java
C++

```
inp = input()
count = 0
final = ""
for i in inp:
    if i == '-':
        count+=1
    else:
        final+=i
print("-"*count,final)
Output:
move-hyphens-to-front
--- movehyphenstofront
```

Question:10

(Asked in Accenture Offcampus 1 Aug 2021, Slot 2)

Problem Statement

A carry is a digit that is transferred to left if sum of digits exceeds 9 while adding two numbers from right-to-left one digit at a time

You are required to implement the following function.

Int NumberOfCarries(int num1 , int num2);

The functions accepts two numbers ‘num1’ and ‘num2’ as its arguments. You are required to calculate and return the total number of carries generated while adding digits of two numbers ‘num1’ and ‘ num2’.

Assumption: num1, num2>=0

Example:

- **Input**
  - Num 1: 451
  - Num 2: 349
- **Output**
  - 2

Explanation:

Adding ‘num 1’ and ‘num 2’ right-to-left results in 2 carries since (1+9) is 10. 1 is carried and (5+4=1) is 10, again 1 is carried. Hence 2 is returned.

Sample Input

Num 1: 23

Num 2: 563

Sample Output

0

C
Python
Java

```
#include<stdio.h>
int numberOfCarries(int num1 , int num2)
{
    int carry = 0, sum, p, q, count = 0;
    while((num1!=0)&&(num2!=0))
    {
        p = num1 % 10;
        q = num2 % 10;
        sum = carry + p + q;
        if(sum>9)
        {
            carry = 1;
            count++;
        }
        else
        {
            carry = 0;
        }
        num1 = num1/10;
        num2 = num2/10;
    }
    return count;

}

int main()

{

   int x, y, a;

   scanf("%d",&x);

   scanf("%d",&y);

   a = numberOfCarries(x, y);

   printf("%d",a);

   return 0;

}
Output:
23
563
0
```

Question:11

(Asked in Accenture Offcampus 1 Aug 2021, Slot 3)

Problem Statement

You are given a function,

Void *ReplaceCharacter(Char str[], int n, char ch1, char ch2);

The function accepts a string ‘ str’ of length n and two characters ‘ch1’ and ‘ch2’ as its arguments . Implement the function to modify and return the string ‘ str’ in such a way that all occurrences of ‘ch1’ in original string are replaced by ‘ch2’ and all occurrences of ‘ch2’ in original string are replaced by ‘ch1’.

Assumption: String Contains only lower-case alphabetical letters.

Note:

- Return null if string is null.
- If both characters are not present in string or both of them are same , then return the string unchanged.

Example:

- **Input:**
  - Str: apples
  - ch1:a
  - ch2:p
- **Output:**
  - Paales

Explanation:

‘A’ in original string is replaced with ‘p’ and ‘p’ in original string is replaced with ‘a’, thus output is paales.

C
Python
Java

```
#include <stdio.h>
#include <string.h>

void *ReplaceCharacter(char str[], int n, char ch1, char ch2)

{

    int i;

    for(i=0; i<n ; i++)

    {

        if(str[i]==ch1)

        {

            str[i]=ch2;

        }

        else if(str[i]==ch2)

        {
            str[i]=ch1;

        }

    }

    printf("%s",str);

}

int main()

{

    char a[100];

    char b, c;

    int len;

    scanf("%s",a);

    scanf("%s",&b);

    scanf("%s",&c);

    len = strlen(a);

    ReplaceCharacter(a, len, b, c);

    return 0;

}
Output:
apples
a
p
paales
```

Question:12

(Asked in Accenture Offcampus 2 Aug 2021, Slot 1)

Problem Statement

You are required to implement the following function.

Int OperationChoices(int c, int n, int a , int b)

The function accepts 3 positive integers ‘a’ , ‘b’ and ‘c ‘ as its arguments. Implement the function to return.

- (a+ b) , if c=1
- (a + b) , if c=2
- (a * b) , if c=3
- (a / b) , if c =4

Assumption : All operations will result in integer output.

Example:

- **Input**
  - c :1
  - a:12
  - b:16
- **Output:**
  - Since ‘c’=1 , (12+16) is performed which is equal to 28 , hence 28 is returned.

Sample Input

c : 2

a : 16

b : 20

Sample Output

-4

C
Python
Java

```
#include<stdio.h>

int operationChoices(int c, int a , int b)

{
    if(c==1)

    {

        return a + b;

    }

    else if(c==2)

    {

        return a - b;

    }

    else if(c==3)

    {

        return a * b;

    }

    else if(c==4)

    {

        return a / b;

    }

}

int main()

{

    int x, y, z;

    int result;

    scanf("%d",&x);

    scanf("%d",&y);

    scanf("%d",&z);

    result = operationChoices(x, y, z);

    printf("%d",result);

}
Output:
2
```

```
16
20
-4
```

Question:13

(Asked in Accenture Offcampus 2 Aug 2021, Slot 2)

Problem Statement

You are given a function,

Int MaxExponents (int a , int b);

You have to find and return the number between ‘a’ and ‘b’ (range inclusive on both ends) which has the maximum exponent of 2.

The algorithm to find the number with maximum exponent of 2 between the given range is

1. Loop between ‘a’ and ‘b’. Let the looping variable be ‘i’.
2. Find the exponent (power) of 2 for each ‘i’ and store the number with maximum exponent of 2 so faqrd in a variable , let say ‘max’. Set ‘max’ to ‘i’ only if ‘i’ has more exponent of 2 than ‘max’.
3. Return ‘max’.

Assumption: a <b

Note: If two or more numbers in the range have the same exponents of 2 , return the small number.

Example

- **Input:**
  - **7**
  - **12**
- **Output:**
  - **8**

Explanation:

Exponents of 2 in:

7-0

8-3

9-0

10-1

11-0

12-2

Hence maximum exponent if two is of 8.

Python
Java
C++

```
def countExponents(i):

    count = 0

    while i%2 == 0 and i != 0:

        count+=1

        i = i//2

    return count

def maxExponents(a, b):

    maximum, number = 0, a

    for i in range(a,b):

        temp = countExponents(i)

        if temp>maximum:

            maximum, number = temp, i
    return number

a, b = map(int,input().split())

print(maxExponents(a, b))
Output:
7 12
8
```

Question : 14

(Asked in Accenture Offcampus 2 Aug 2021, Slot 3)

Problem Statement

You are required to implement the following function:

Int Calculate(int m, int n);

The function accepts 2 positive integer ‘m’ and ‘n’ as its arguments.You are required to calculate the sum of numbers divisible both by 3 and 5, between ‘m’ and ‘n’ both inclusive and return the same.

Note

0 < m <= n

Example

Input:

m : 12

n : 50

Output

90

Explanation:

The numbers divisible by both 3 and 5, between 12 and 50 both inclusive are {15, 30, 45} and their sum is 90.

Sample Input

m : 100

n : 160

Sample Output

405

C
C++
Java
Python

```
/* Programming Question */

#include <stdio.h>

int Calculate(int, int);

int main()
{
int m, n, result;

// Getting Input

printf("Enter the value of m : ");
scanf("%d",&m);
printf("Enter the value of n : ");
scanf("%d",&n);

result = Calculate(n,m);

// Getting Output

printf("%d",result);

return 0;
}

/* Write your code below . . . */

int Calculate(int n, int m)
{
// Write your code here
int i, sum = 0;
for(i=m;i<=n;i++)
{
if((i%3==0)&&(i%5==0))
{
sum = sum + i;
}
}

return sum;
}
```

Question 15

Problem Statement

You are required to input the size of the matrix then the elements of matrix, then you have to divide the main matrix in two sub matrices (even and odd) in such a way that element at 0 index will be considered as even and element at 1st index will be considered as odd and so on. then you have sort the even and odd matrices in ascending order then print the sum of second largest number from both the matrices

Example

- **enter the size of array** : 5
- **enter element at 0 index** : 3
- **enter element at 1 index :** 4
- **enter element at 2 index** : 1
- **enter element at 3 index :** 7
- **enter element at 4 index** : 9

Sorted even array : 1 3 9

Sorted odd array : 4 7

10

C
C++
Java
Python

```c
#include <stdio.h>

int main()
{
int arr[100];
int length, i, j, oddlen, evenlen, temp, c, d;
int odd[50], even[50];

printf("enter the length of array : ");
scanf("%d",&length);

for(i=0;i<length;i++)
{
printf("Enter element at %d index : ",i);
scanf("%d",&arr[i]);
}

if(length%2==0)
{
oddlen = length/2;
evenlen = length/2;
}
else
{
oddlen = length/2;
evenlen = (length/2) + 1;
}

for(i=0;i<length;i++) // seperation of even and odd array
{
if(i%2==0)
{
even[i/2] = arr[i];
}
else
{
odd[i/2] = arr[i];
}
}

for(i=0; i<evenlen-1; i++) // sorting of even array
{
for(j=i+1; j<evenlen; j++)
{
temp = 0;
if(even[i]>even[j])
{
temp = even[i];
even[i] = even[j];
even[j] = temp;
}
}
}

for(i=0; i<oddlen-1; i++) // sorting of odd array
{
for(j=i+1; j<oddlen; j++)
{
temp = 0;
if(odd[i]>odd[j])
{
temp = odd[i];
odd[i] = odd[j];
odd[j] = temp;
}
}
}

printf("\nSorted even array : "); // printing even array
for(i=0;i<evenlen;i++)
{
printf("%d ",even[i]);
}

printf("\n");

printf("Sorted odd array : "); // printing odd array
for(i=0;i<oddlen;i++)
{
printf("%d ",odd[i]);
}

printf("\n\n%d",even[evenlen-2] + odd[1]); // printing final result
}
```

Question : 16

Instructions: You are required to write the code. You can click on compile and run anytime to check compilation/execution status. The code should be logically/syntactically correct.

Problem: Write a program in C to display the table of a number and print the sum of all the multiples in it.

Test Cases:

Test Case 1:

Input:

5

Expected Result Value:

5, 10, 15, 20, 25, 30, 35, 40, 45, 50

275

Test Case 2:

Input:

12

Expected Result Value:

12, 24, 36, 48, 60, 72, 84, 96, 108, 120

660

C
C++
Java
Python

```
 #include <stdio.h>
int main()
{
int n, i, value=0, sum=0;

printf("Enter the number for which you want to know the table: ",n);
scanf("%d",&n);

for(i=1; i<=10; ++i)
{
value = n * i;
printf("table is %d \n",value);
sum=sum+value;
}

printf("sum is %d",sum);

return 0;
}
```

Question : 17

Instructions: You are required to write the code. You can click on compile and run anytime to check compilation/execution status. The code should be logically/syntactically correct.

Question: Write a program in C such that it takes a lower limit and upper limit as inputs and print all the intermediate pallindrome numbers.

Test Cases:

TestCase 1:

Input :

10 , 80

Expected Result:

11 , 22 , 33 , 44 , 55 , 66 , 77.

Test Case 2:

Input:

100,200

Expected Result:

101 , 111 , 121 , 131 , 141 , 151 , 161 , 171 , 181 , 191.

C
C++
Java
Python

```
 #include<stdio.h>
int main()
{
int i, n, reverse, d,f,l;
printf("enter the starting \n",f);
scanf("%d",&f);
printf("enter the ending\n",l);
scanf("%d",&l);
for (i = f; i <= l; i++)
{
reverse = 0;
n = num;
while (n != 0)
{
d = n % 10;
reverse = reverse * 10 + d;
n = n / 10;
}
if (i == reverse)
printf("%d ",i);
}
return 0;
}
```

Question : 18

Instructions: You are required to write the code. You can click on compile & run anytime to check the compilation/ execution status of the program. The submitted code should be logically/syntactically correct and pass all the test cases.

Ques: The program is supposed to calculate the distance between three points.

For

x1 = 1 y1 = 1

x2 = 2 y2 = 4

x3 = 3 y3 = 6

Distance is calculated as : **sqrt$(x_2-x_1)^2$ + $(y_2-y_1)^2$**

C
Python
Java

```
#include <stdio.h>
#include <math.h>

int isDistance(float *pt1, float *pt2, float *pt3)
{
float a, b, c;
a = sqrt(((pt2[0]-pt1[0])*(pt2[0]-pt1[0]))+((pt2[1]-pt1[1])*(pt2[1]-pt1[1])));
printf(“%f”,a);
b = sqrt(((pt3[0]-pt2[0])*(pt3[0]-pt2[0]))+((pt3[1]-pt2[1])*(pt3[1]-pt2[1])));
printf(“%f”,b);
c = sqrt(((pt3[0]-pt1[0])*(pt3[0]-pt1[0]))+((pt3[1]-pt1[1])*(pt3[1]-pt1[1])));
printf(“%f”,c);
}

int main()
{
int t;
float p1[2], p2[2], p3[2];
printf("enter x1 and y1 : ");
scanf("%f%f",&p1[0],&p1[1]);
printf("enter x2 and y2 : ");
scanf("%f%f",&p2[0],&p2[1]);
printf("enter x3 and y3 : ");
scanf("%f%f",&p3[0],&p3[1]);
t = isDistance(&p1, &p2, &p3);
printf("%d",t);
return 0;
}
```

Question : 19

Find the maximum value and its index in the array

Problem Statement :

You are given a function, void MaxInArray(int arr[], int length); The function accepts an integer array ‘arr’ of size ‘length’ as its argument. Implement the function to find the maximum element of the array and print the maximum element and its index to the standard output

(STDOUT). The maximum element and its index should be printed in separate lines.

Note:

- Array index starts with 0
- Maximum element and its index should be separated by a line in the output
- Assume there is only 1 maximum element in the array
- Print exactly what is asked, do not print any additional greeting messages

Example:

Input:

23 45 82 27 66 12 78 13 71 86

Output:

86

9

Explanation:

86 is the maximum element of the array at index 9.

C++
Java

```
#include<iostream>
using namespace std;


void MaxInArray (int arr[], int length)
{
  int max = INT_MIN, index = -1;

  for (int i = 0; i < length; i++)
    {
      if (arr[i] > max){

            max = arr[i];
            index = i;

      }
    }

 cout << max << endl << maxIdx;

}


int main ()
{
  int n;
  cin >> n;

  int arr[n];

  for (int i = 0; i < n; i++)
    cin >> arr[i];

  MaxInArray (a, n);

  return 0;
}
```

Question : 20

Autobiographical Number

Problem Statement :

An Autobiographical Number is a number N such that the first digit of N represents the count of how many zeroes are there in N, the second digit represents the count of how many ones are there in N and so on.

You are given a function, **def FindAutoCount(n):**

The function accepts string “n” which is a number and checks whether the number is an autobiographical number or not. If it is, an integer is returned, i.e. the count of distinct numbers in ‘n’. If not, it returns 0.

Assumption:

- The input string will not be longer than 10 characters.
- Input string will consist of numeric characters.

Note:

If string is None return 0.

Example:

Input:

n: “1210”

Output:

3

Explanation:

0th position in the input contains the number of 0 present in input, i.e. 1, in 1st position the count of number of 1s in input i.e. 2, in 2nd position the count of 2s in input i.e. 1, and in 3rd position the count of 3s i.e. 0, so the number is an autobiographical number.

Now unique numbers in the input are 0, 1, 2, so the count of unique numbers is 3. So 3 is returned.

C++
Java

```
#include<bits/stdc++.h>
using namespace std;

int FinndAutoCount (string n)
{
  int sum=0;
  set < char >st;

  for (int i = 0; i < n.size (); i++)
    {
        sum += (n[i]-'0');
        st.insert (n[i]);
    }
  if(sum != n.size())
  return 0;

  return st.size ();
}

int main ()
{
  string n;
  cin >> n;

  cout << FinndAutoCount (n);

  return 0;
}
```