Week: 2

2) a)Write a C program to generate all prime numbers between 1 and n. Where n is the value supplied by the user.

Aim: To print a prime numbers up to 1 to n

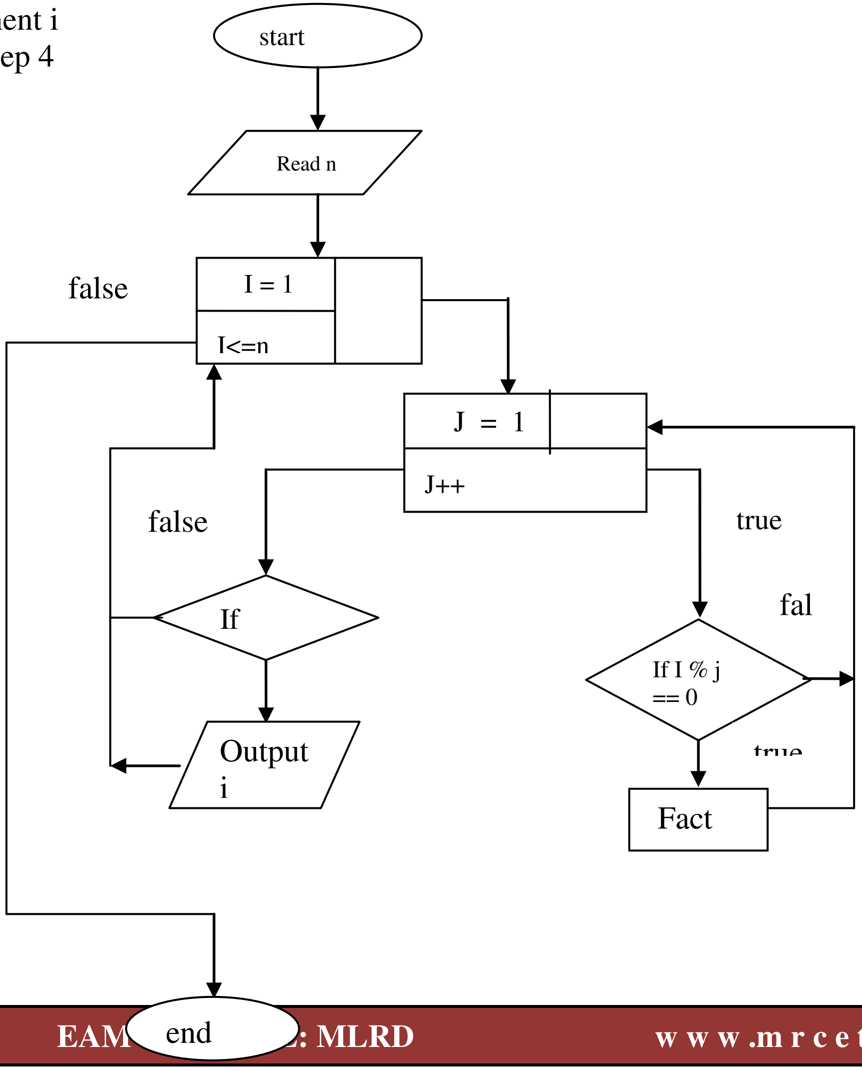
Description:

Prime number is a number which is exactly divisible by one and itself only
Ex: 2, 3,5,7,………;

Algorithm:

```
Step 1: start
Step 2: read n
Step 3: initialize i=1,c=0
Step 4:if i<=n goto step 5
          If not goto step 10
Step 5: initialize j=1
Step 6: if j<=i do the following. If no goto step 7
          i)if i%j==0 increment c
          ii) increment j
          iii) goto Step 6
Step 7: if c== 2 print i
Step 8: increment i
Step 9: goto step 4
Step 10: stop
```

FLOWCHART:



Program:

```
#include<stdio.h>
#include<conio.h>
void main()
{
   int n,i,fact,j;
   clrscr();
   printf("enter the number:");
   scanf("%d",&n);
   for(i=1;i<=n;i++)
   {        fact=0;
            //THIS LOOP WILL CHECK A NO TO BE PRIME NO. OR NOT.
           for(j=1;j<=i;j++)
            {
                    if(i%j==0)
                     fact++;
            }
            if(fact==2)
                    printf("\n %d",i);
    }
getch( );
}
```

Output:

```
Enter the number : 5
      2    3  5
```

Record at least 3 results

Signature of faculty with date

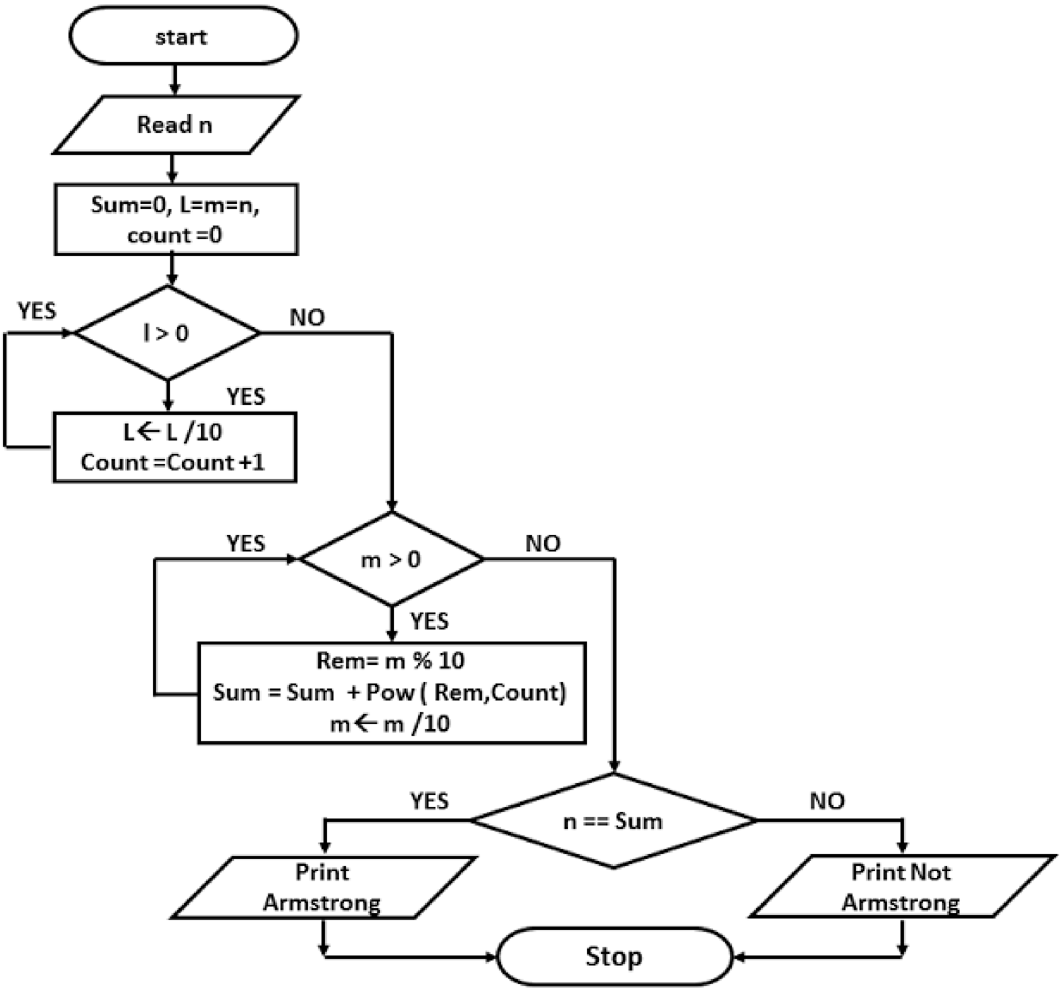
2) b) Write a C program to Check whether given number is Armstrong Number or Not.

AIM: To Check whether given number is Armstrong Number or Not

Algorithm:

Armstrong number

```
Step 1: start
Step 2:read n
Step 3:assign sum ←0,I←m←n,count =0
Step 4:if m>0 repeat
        Step 4.1:m←m/10
        Step 4.2:count++
        Step 4.3:until the condition fail
Step5: if I>0 repeat step 4 until condition fail
        Step 5.1:rem←I%10
        Step 5.2:sum←sum+pow(rem,count)
        Step 5.3:I←I/10
Step 6:if n=sum print Armstrong otherwise print not armstrong
Step 7:stop
```



Program:

```
#include <stdio.h>
int main()
{
  int n, n1, rem, num=0;
  printf("Enter a positive  integer: ");
  scanf("%d", &n);
  n1=n;
  while(n1!=0)
  {
      rem=n1%10;
      num+=rem*rem*rem;
      n1/=10;
  }
  if(num==n)
    printf("%d is an Armstrong number.",n);
  else
    printf("%d is not an Armstrong number.",n);
}
```

Input:

```
Enter a positive integer: 371
```

Output:

```
371 is an Armstrong number.
```

Record at least 3 results

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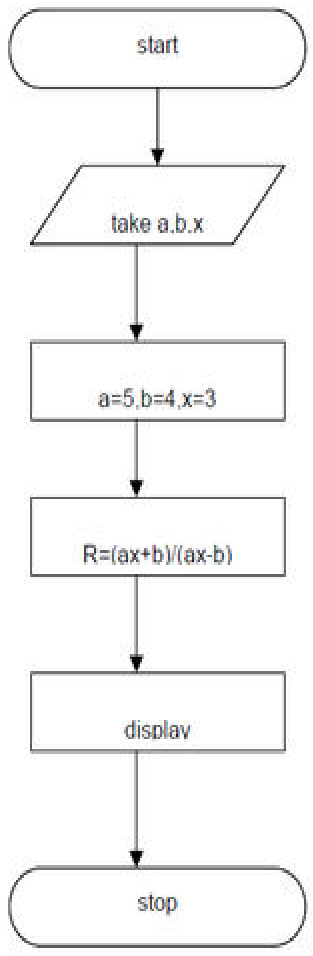
2) c). Write a C program to evaluate algebraic expression (ax+b)/(ax-b)

Algorithm:

```
Step 1:start
Step 2:input a,b,x,s
Step 3:s=(a*x+b)/(a*x-b)
Step 4:Result s
Step 5:stop
```

Flow Chart:



Program:

```
#include<stdio.h>
#include<conio.h>
int main( )
{
int a,b,x;
float s;
clrscr();
printf(“enter the values of a,b,x”);
scanf(“%d %d %d”,&a,&b,&x);
s=(a*x+b)/(a*x-b);
printf(“The value of s=%f”,s);
getch();
}
```

Input:enter the values of a,b,x

```
        1    3      2
```

Output:

```
The value of s= 5
```

Record at least 3 results

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