Name : Sharma Anish Ashok

Roll No : 11

SAP ID : 60003220045

Branch : Information Technology

Div : D

Batch : IT1

Experiment No. 6

Write a program to count the number of digits in a given integer.

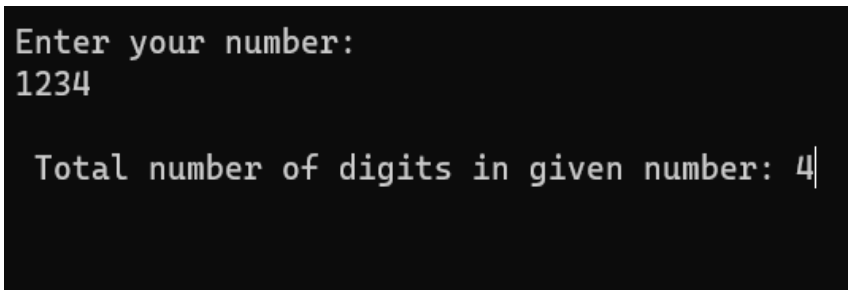
Aim :

Counting the number of digits in a given integer.

Code :

```
#include<stdio.h>
#include<conio.h>
void main()
{
   int num,count=0,rem;
   //clrscr();
   printf("Enter your number:\n");
   scanf("%d",&num);
   while(num>0)
   {
      count++;
      num=num/10;
   }
   printf("\n Total number of digits in given number: %d",count);
   getch();
}
```

Output :



Conclusion :

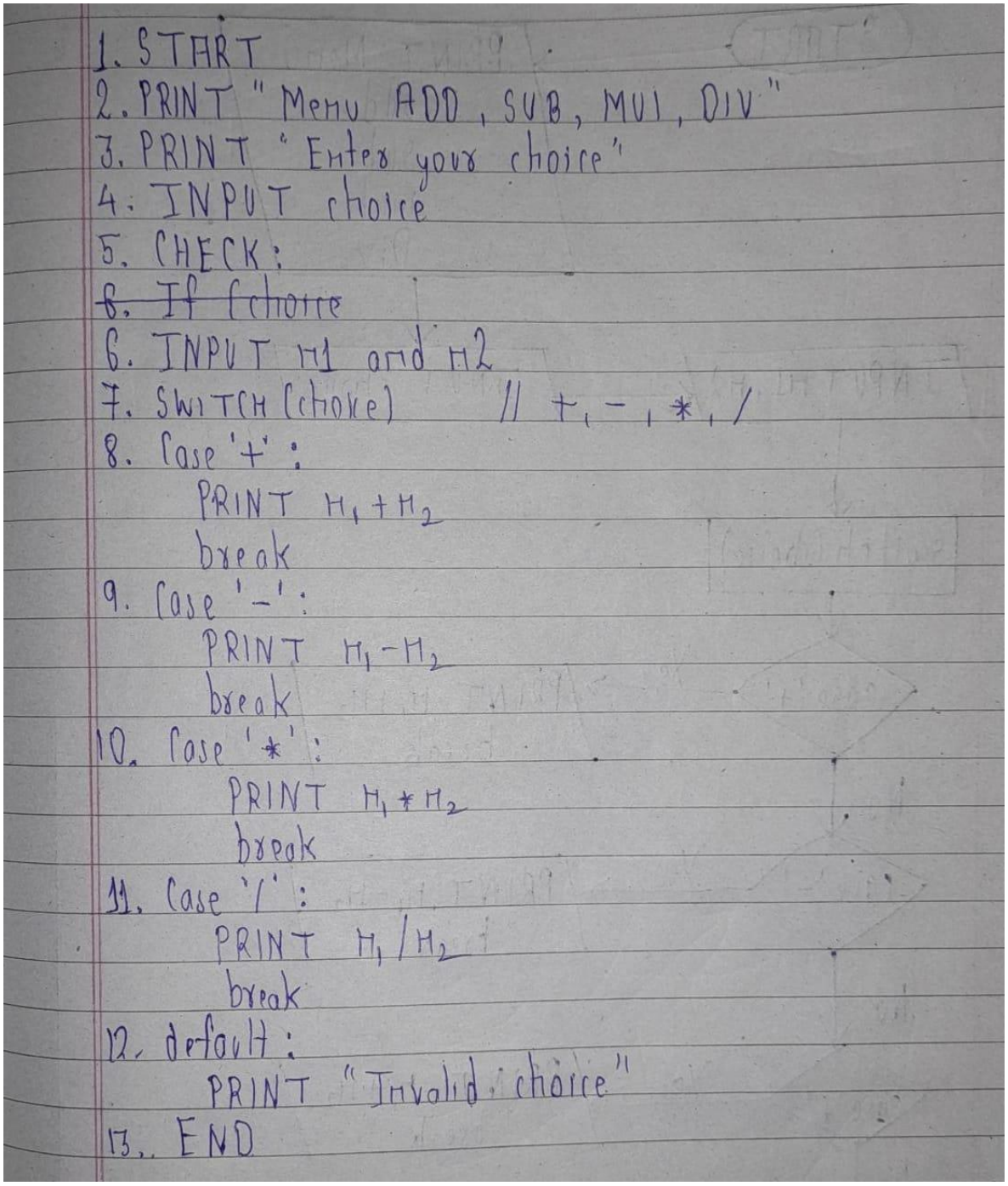
We understand the use of while loop and how to count number digits in given number.

Experiment No. 7

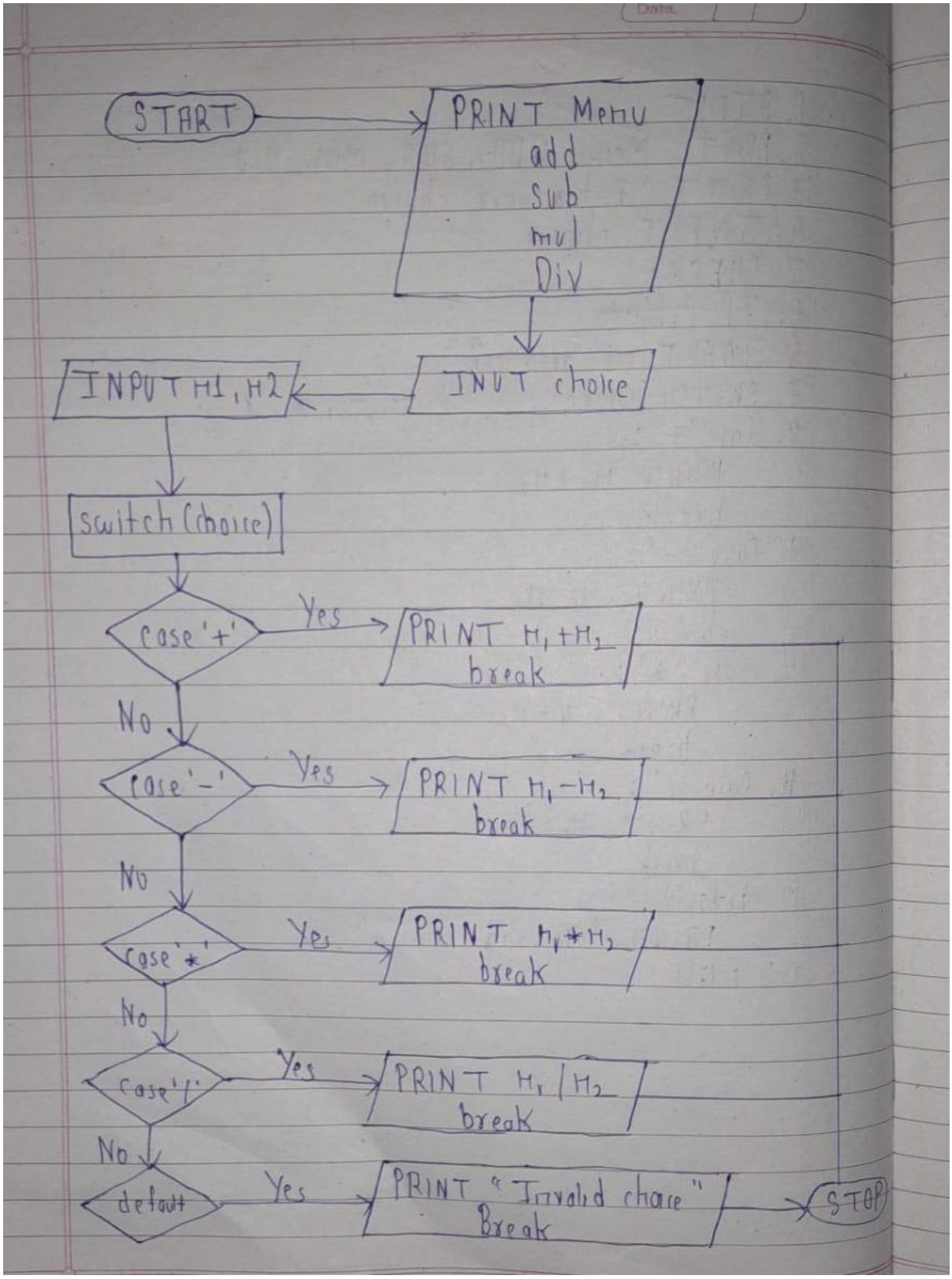
Write a menu driven program to perform simple arithmetic operations based on the user's choice. The user will indicate the operation to be performed using the signs e.g. + for addition, etc. Write an algorithm and draw flowchart for same.

Aim : Use of switch in making simple calculator

Algorithm :



Flowchart :


START
PRINT Menu
add
Sub
mul
Div
INUT choice
INPUT H1, H2
switch (choice)
case '+'
Yes
PRINT H1+H2
break
No
case '-'
Yes
PRINT H1-H2
break
No
case '*'
Yes
PRINT H1*H2
break
No
case '/'
Yes
PRINT H1/H2
break
No
defaut
Yes
PRINT "Invalid chare"
Break
STOP

Code :

```
#include<stdio.h>
#include<conio.h>
void main()
{
   int n1,n2;
   char choice;
   //clrscr();
   printf("Menu of Simple calculator\n");
   printf("+. Addition\n-. Subtraction\n*. Multiplication\n/. Division");
   printf("\nEnter your choice according to the Menu:\n");
   scanf("%c",&choice);
   printf("\nEnter two number:\n");
   scanf("%d %d",&n1,&n2);
   switch(choice)
   {
   case '+':
      printf("\nAddition of two number is %d",n1+n2);
      break;
   case '-':
      printf("\nSubtraction pof two number is %d",n1-n2);
      break;
   case '*':
      printf("\nMultiplication of two number is%d",n1*n2);
      break;
   case '/':
      printf("\nDivision of two number is %d",n1/n2);
      break;
   default:
      printf("\nEnter valid number");
   }
   getch();
}
```

Output :

```
Menu of Simple calculator
+. Addition
-. Subtraction
*. Multiplication
/. Division
Enter your choice according to the Menu:
+

Enter two number:
2
8

Addition of two number is 10
```

```
Menu of Simple calculator
+. Addition
-. Subtraction
*. Multiplication
/. Division
Enter your choice according to the Menu:
-

Enter two number:
2
9

Subtraction pof two number is -7
```

```
Menu of Simple calculator
+. Addition
-. Subtraction
*. Multiplication
/. Division
Enter your choice according to the Menu:
*

Enter two number:
2
8

Multiplication of two number is16
```

```
Menu of Simple calculator
+. Addition
-. Subtraction
*. Multiplication
/. Division
Enter your choice according to the Menu:
/

Enter two number:
25
5

Division of two number is 5
```

Conclusion :

We understand the concept of switch statement in above given program.

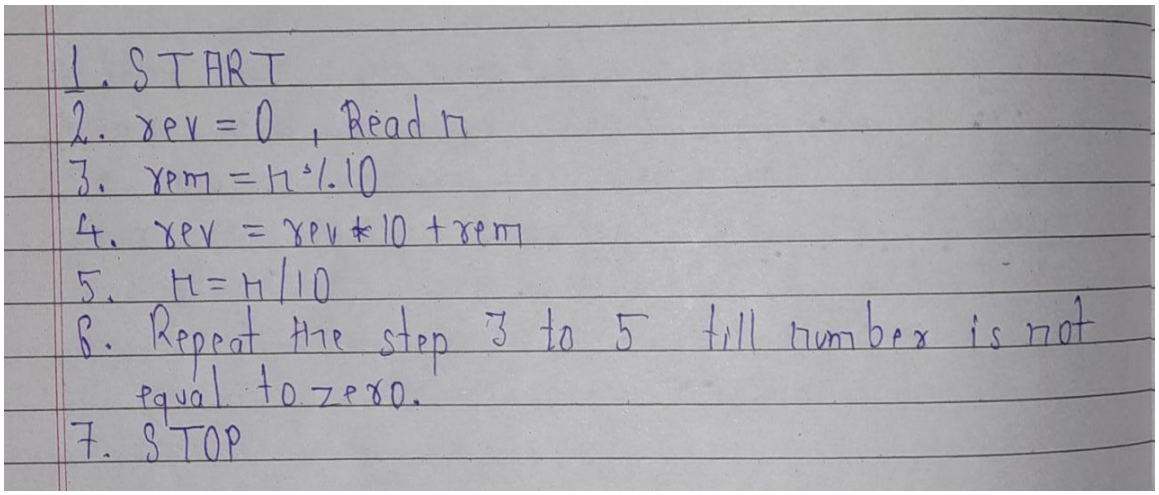
Experiment No. 8

Write a program to read a number of more than one digit, reverse the number and display the sum of digits of numbers. Write algorithm and draw flowchart for the same.

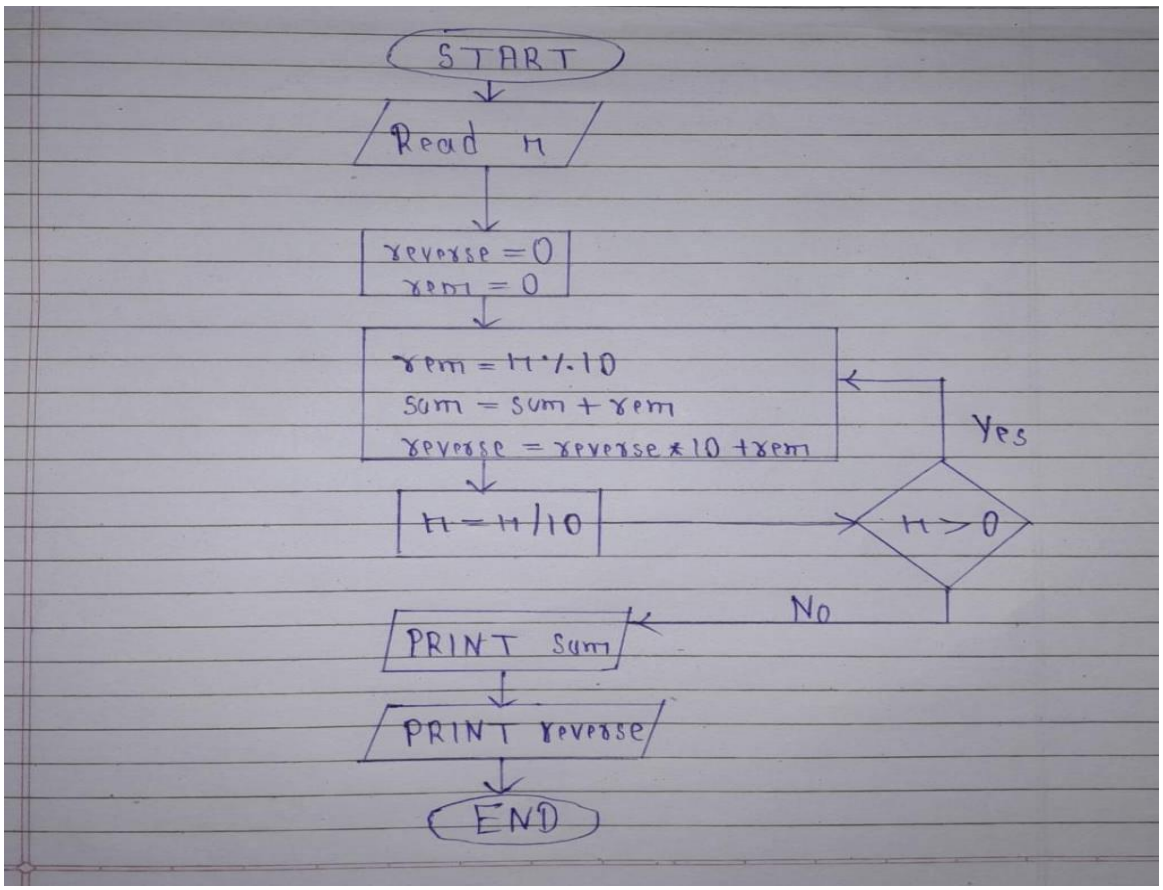
Aim :

reverse the number and display the sum of digits of numbers

Algorithm :



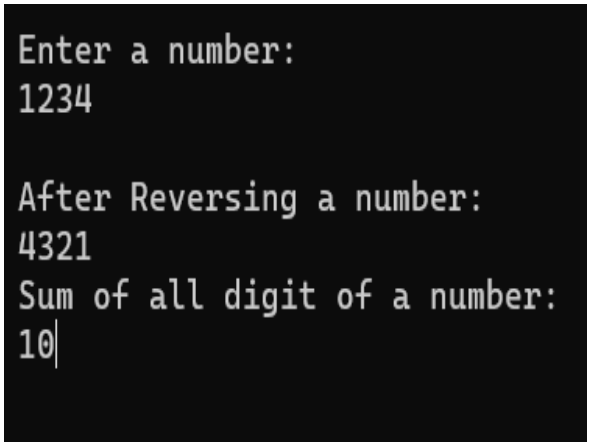
Flowchart :

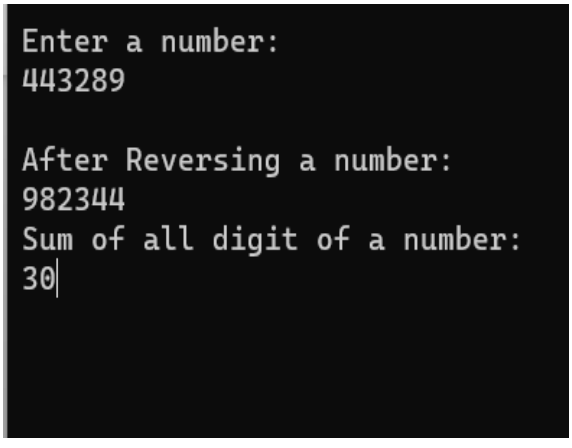


code :

```
#include<stdio.h>
#include<conio.h>
void main()
{
   int num,rem,reverse=0,sum=0;
   //clrscr();
   printf("Enter a number:\n");
   scanf("%d",&num);
   while(num>0)
   {
      rem=num%10;
      sum+=rem;
      reverse=reverse*10+rem;
      num/=10;
   }
   printf("\nAfter Reversing a number:\n%d",reverse);
   printf("\nSum of all digit of a number:\n%d",sum);
   getch();
}
```

Output :





Conclusion :

We understand how to reverse a number and sum of all digits of a given number.

Experiment No. 9

Write programs to display each of the following patterns. Write algorithm and draw flowchart for the same

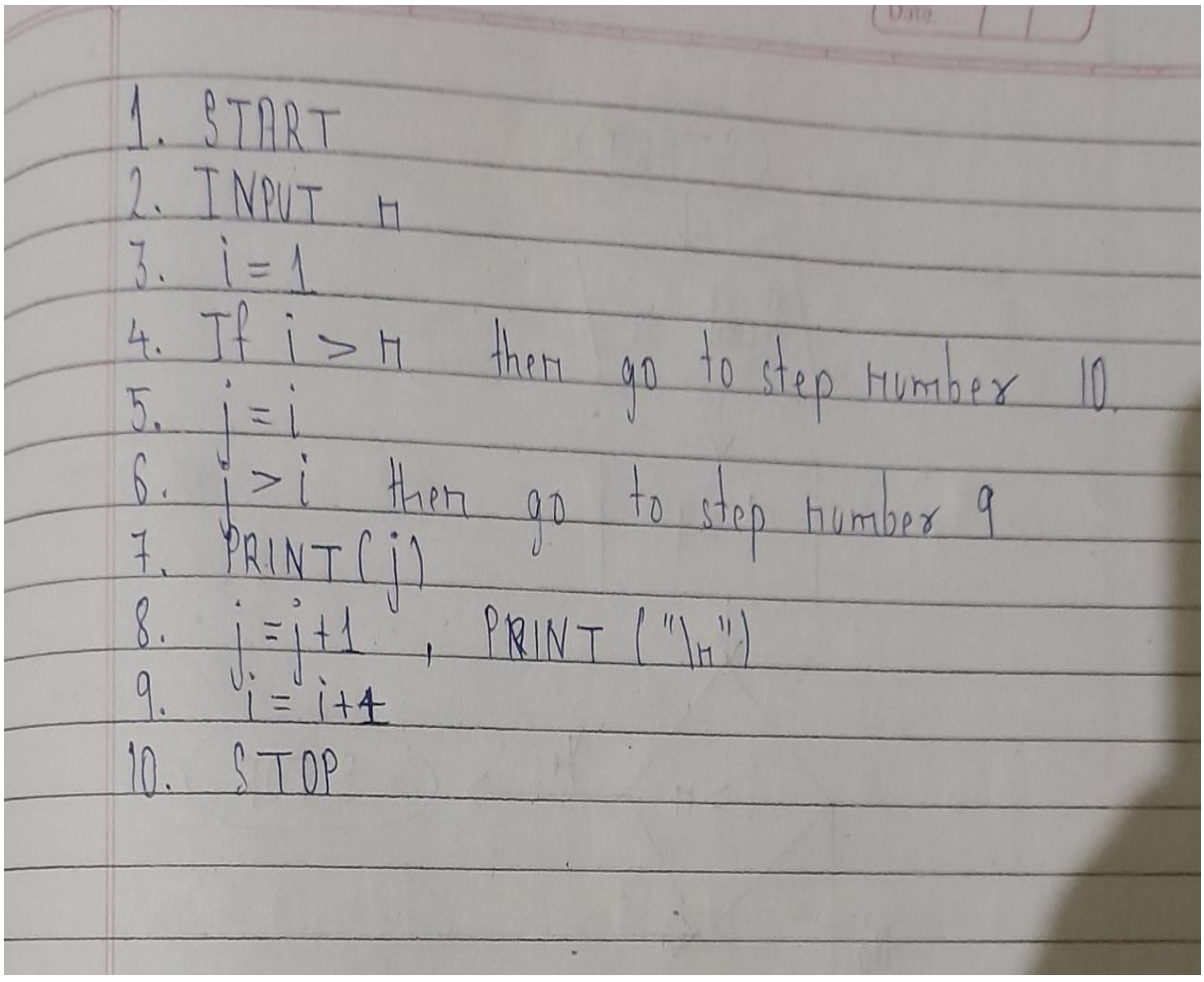
A)
```
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1
```

B)
```
A
ABA
ABCBA
ABCDCBA
ABCDEDCBA
```

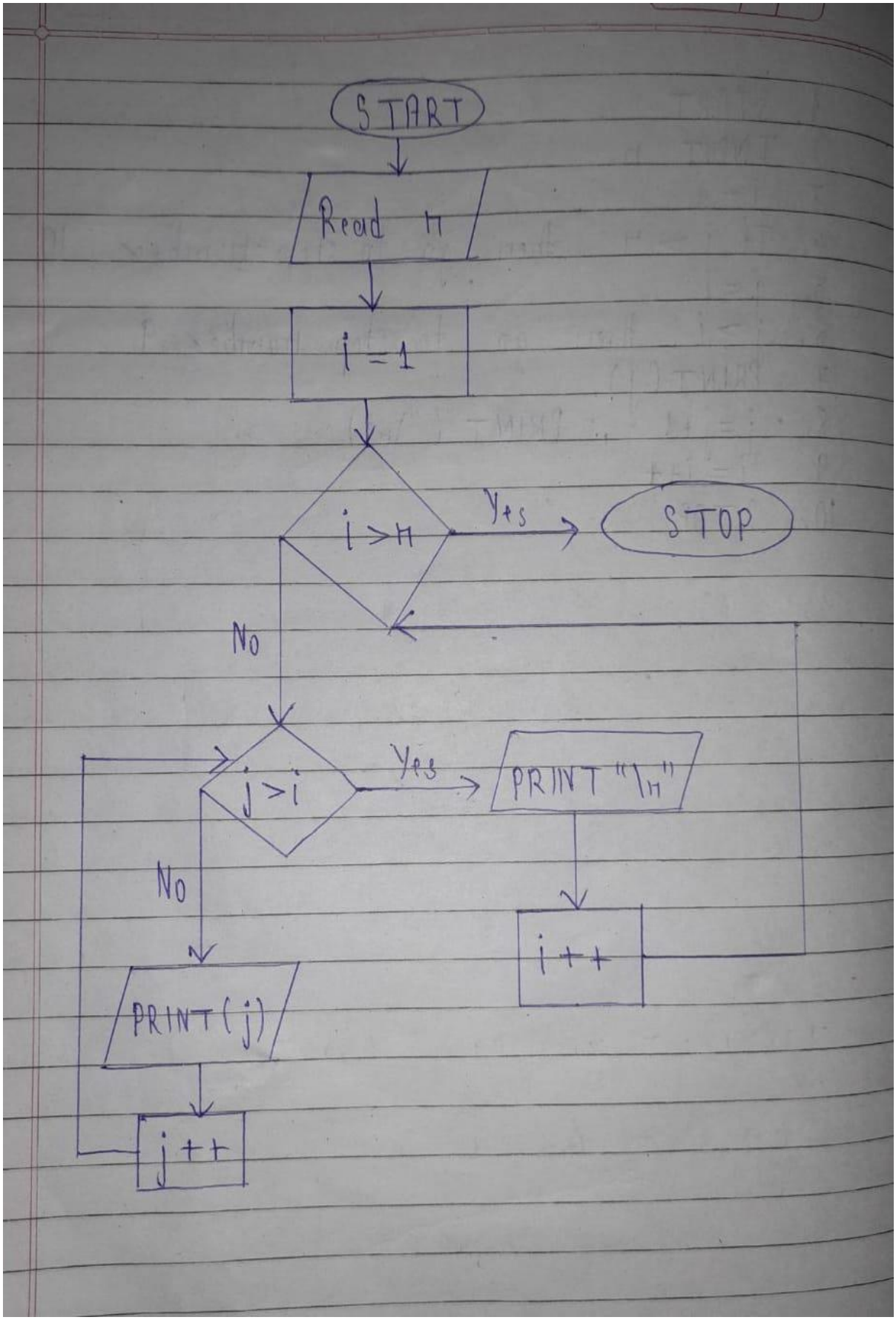
Aim :

study of pattern using loop

Algorithm :



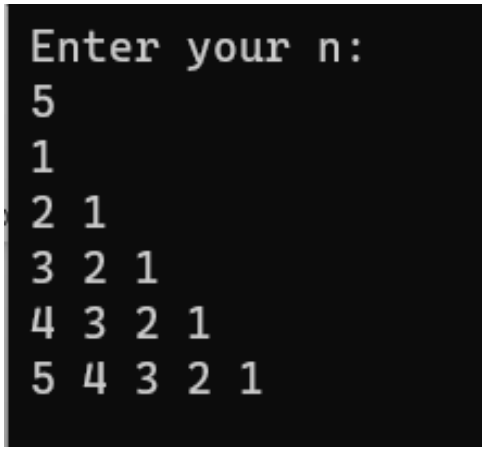
Flowchart :



Code :

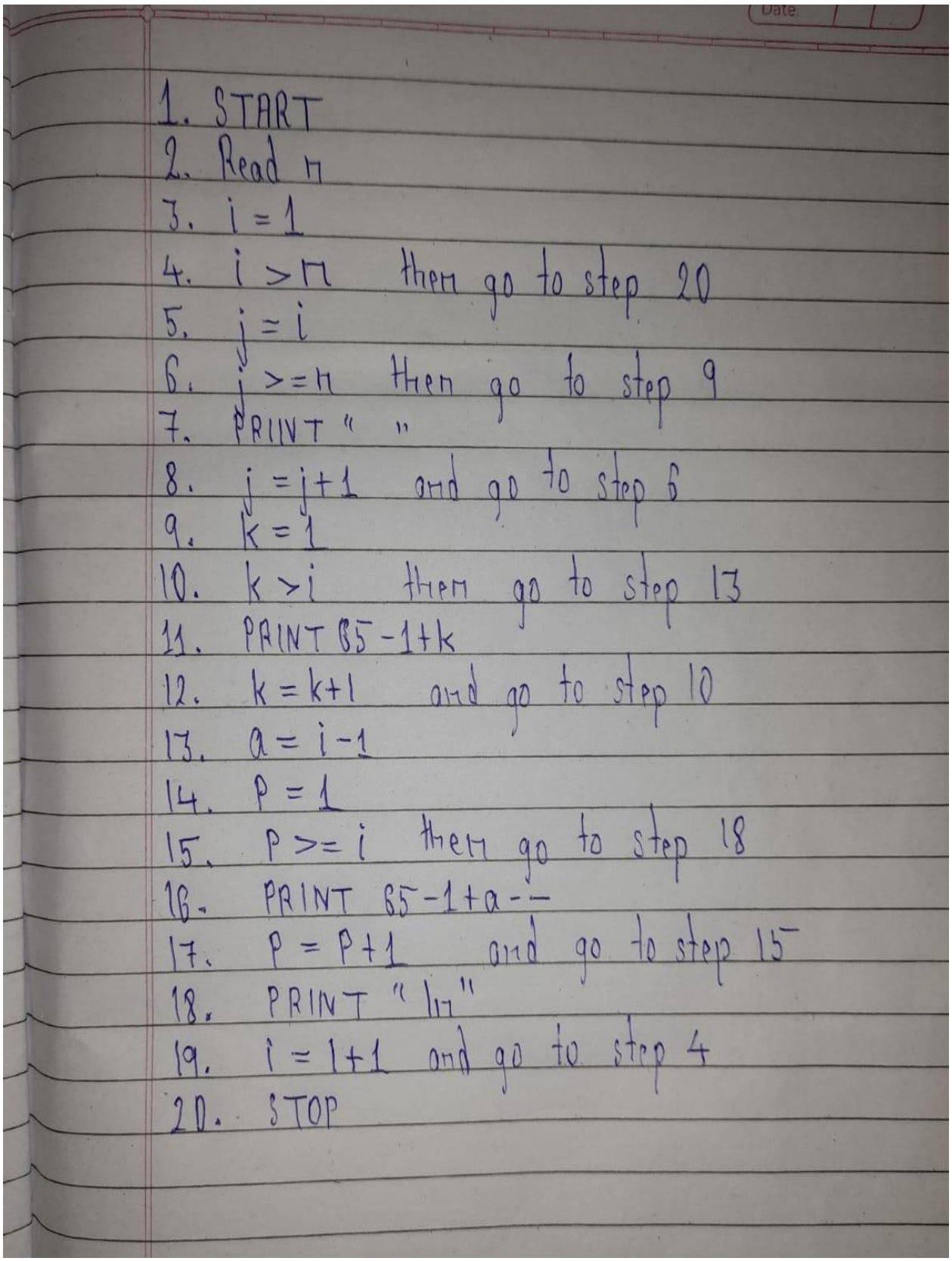
```
#include<stdio.h>
#include<conio.h>
void main()
{
   int i,j,n;
   //clrscr();
   printf("Enter your n:\n");
   scanf("%d",&n);
   for(i=1;i<=n;i++)
   {
      for(j=i;j>=1;j--)
      {
         printf("%d ",j);
      }
      printf("\n");
   }
}
```

Output :

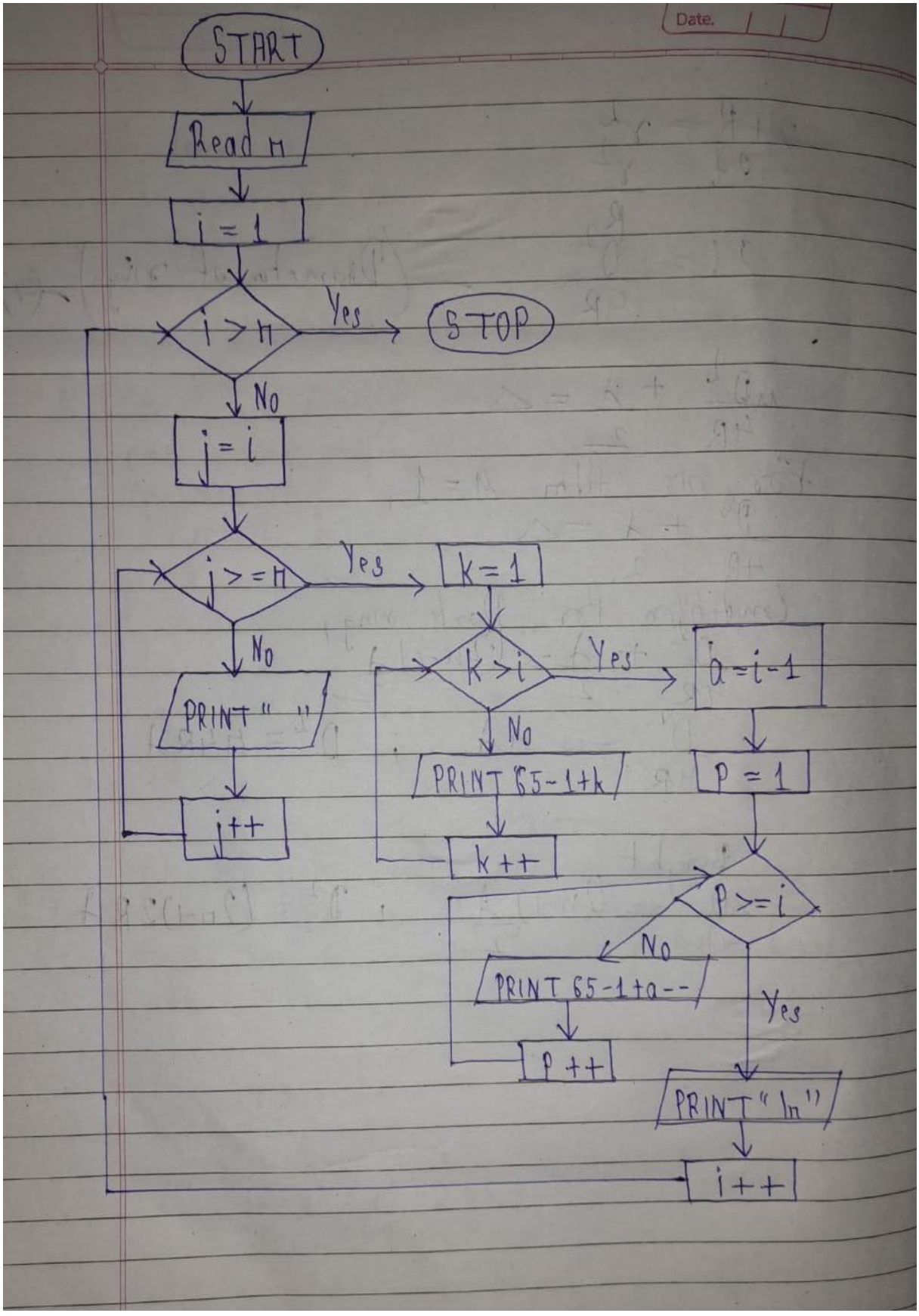


B)

Algorithm :


1. START
2. Read n
3. i = 1
4. i > n then go to step 20
5. j = i
6. j >= n then go to step 9
7. PRINT " "
8. j = j+1 and go to step 6
9. k = 1
10. k > i then go to step 13
11. PRINT 65-1+k
12. k = k+1 and go to step 10
13. a = i-1
14. p = 1
15. p >= i then go to step 18
16. PRINT 65-1+a--
17. p = p+1 and go to step 15
18. PRINT "\n"
19. i = 1+1 and go to step 4
20. STOP

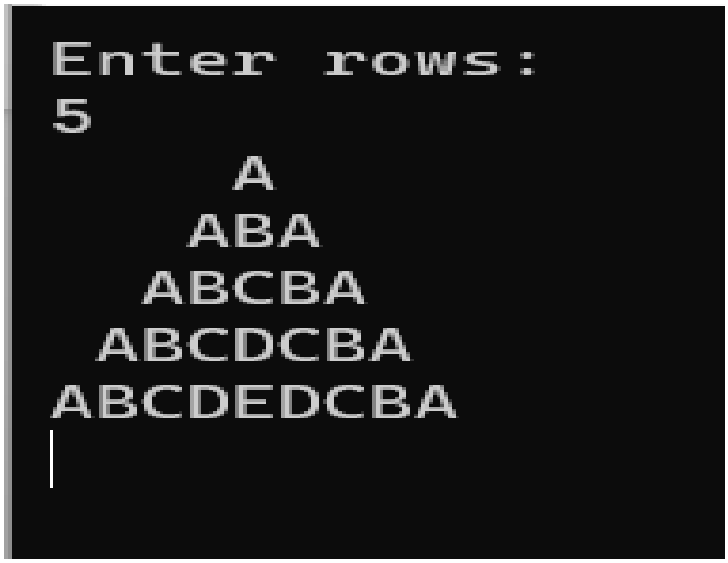
Flowchart :

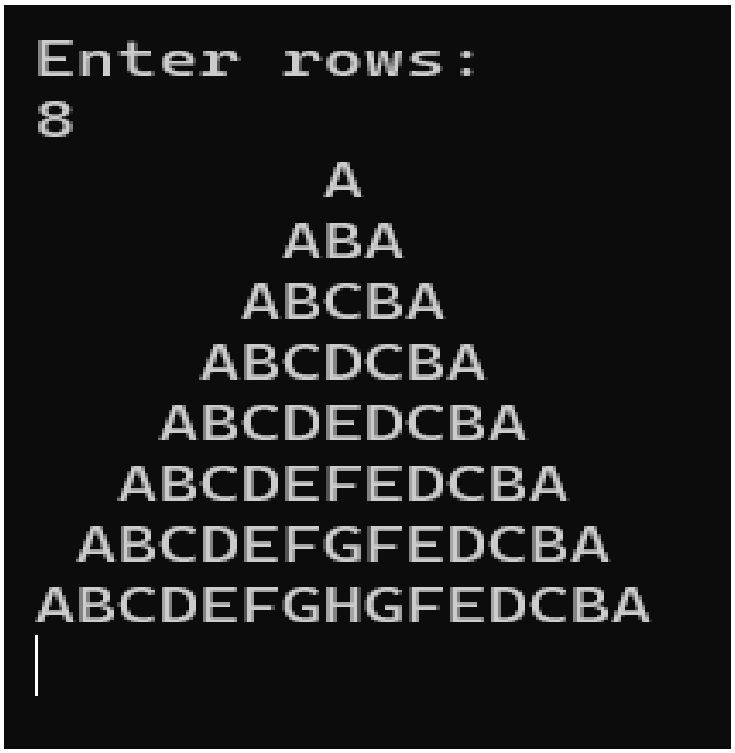

Date.
START
Read n
i = 1
i > n
Yes
STOP
No
j = i
j >= n
Yes
k = 1
No
PRINT " "
i++
k > i
Yes
a = i - 1
No
PRINT 65-1+k
p = 1
k++
p >= i
No
PRINT 65-1+a--
Yes
p ++
PRINT "\n"
i++

Code :

```
#include<stdio.h>
#include<conio.h>
void main()
{
   int i,j,n,k,a,p;
   //clrscr();
   printf("Enter rows:\n");
   scanf("%d",&n);
   for(i=1;i<=n;i++)
   {
      for(j=i;j<n;j++)
      {
         printf(" ");
      }
      for(k=1;k<=i;k++)
      {
         printf("%c",65-1+k);
      }
      a=i-1;
      for(p=1;p<i;p++)
      {
         printf("%c",65-1+a--);
      }
      printf("\n");
   }
   getch();
}
```

Output:





Conclusion :

We understand the concept of for loop and how to tackle pattern like problem.

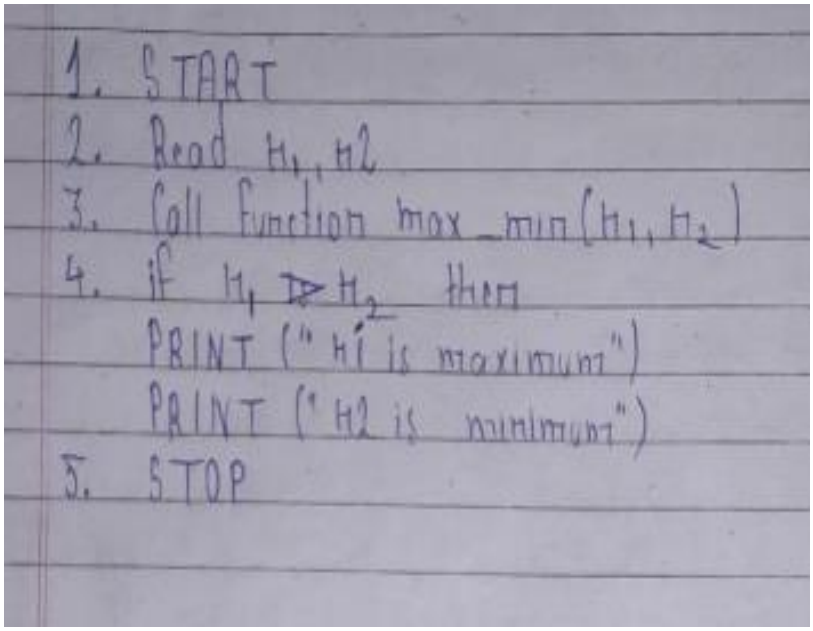
Experiment No. 10

Write a C program to find maximum and minimum between two numbers using functions. Write algorithm and draw flowchart for the same.

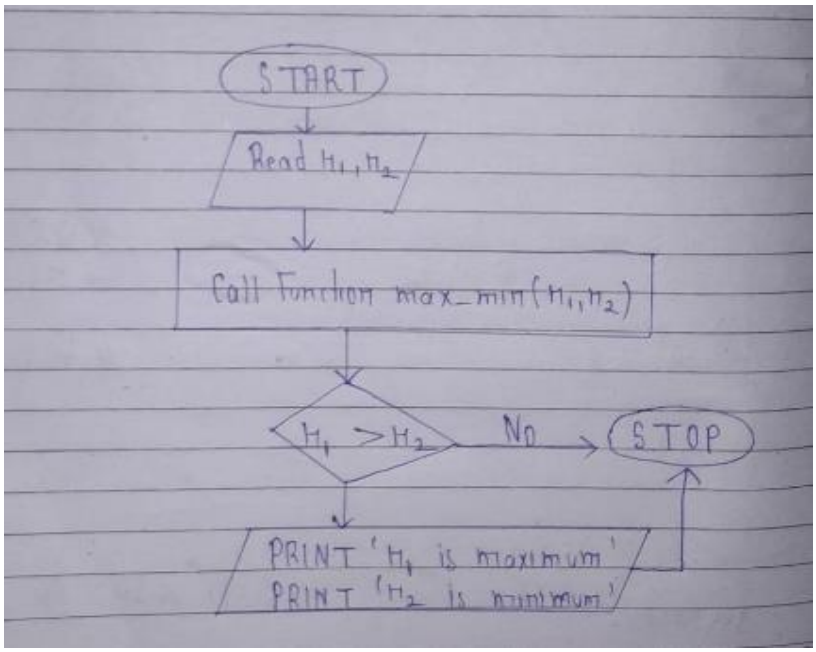
Aim :

Study of function

Algorithm :



Flowchart :

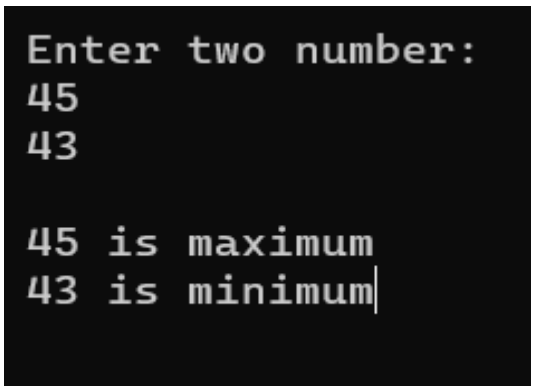


Code :

```
#include<stdio.h>
#include<conio.h>
void max_min(int n1,int n2);
void main()
{
   int n1,n2;
   //clrscr();
   printf("Enter two number:\n");
   scanf("%d %d",&n1,&n2);
   max_min(n1,n2);
   getch();

}
void max_min(int n1,int n2)
{
   if(n1>n2)
      printf("\n%d is maximum",n1);
      printf("\n%d is minimum",n2);
}
```

Output:



Conclusion :

We understand that how to use if else statement and how to check which is maximum or minimum number.