C programming practiq no 1

(To Display Name Roll no , percentage)

Aim:- write a c program to understand basic data type and input / out put

Requirement :- Turbo C

Algorithm

step 1:- declare a variable name rollno as integer also declare name mobile no as character and percentage as float

step 2:- we print function to print question for user in order to give input

step 3:- we use scanf function to read user input and store in its allocated memory

step 4:- again use printf function to display the outputs

conclusion :- The given program gives use an idea about how built in datatype work inc and also about how user can give input and display output

Ahmad

stuct

```
#include <stdio.h>
#include <conio.h>
void main()
{ int roll_no;
  char name[20], mobile_no[];
  float percentage;
  clrscr();
  printf("enter student's name:\n");
  scanf("%s", &name);
  printf("enter student roll no:\n");
  scanf("%d", &roll_no);
  printf("enter student mobile no:%/n");
  scanf("%s", &mobile_no);
  printf("enter student percentage:\n");
  scanf("%f", &percentage);
  printf("student name: %s\n", name);
  printf("student roll no: %d\n", roll_no);
  printf("student mobile no: %s\n", mobile_no);
  printf("student percentage: %f\n", percentage);
  getch();
}
```

Output

Enter student name
yash
Enter student roll no
1882
Enter student percentage
60%
Enter student mobile no
7497001011

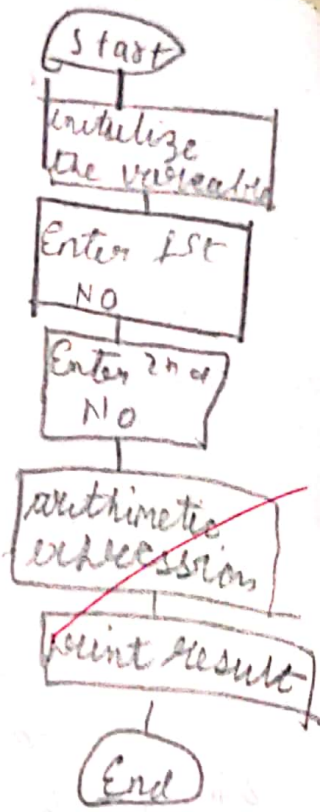
student name: yash
student roll no: 1882
student percentage: 60
student mobile: 7497001011

code

```
#include <stdio.h>
#include <conio.h>
void main()
{
  int num1, num2
  float add, sub, mult, div;
  clrscr;
  printf("enter first number;\n");
  scanf("%d", &num1);
  printf("Enter second number:\n");
  scanf("%d", &num2);
    add = num1 + num2
    sub = num1 - num2
  mult = num1 * num2
  div = num1 / num2
printf("addition of %d and %d is %d", num1, num2
        add);
printf("subtraction of %d and %d is %d", num1, num2
        sub);
printf("multiplication %d and %d is %d", num1
        num2, mult)
printf("division of %d and %d is %d", num1,
        num2, div);
  getch();
```

output

Enter first number: 3
Enter second number: 3
addition: 6
subtraction: 0
multiplication: 9
division: 1.



Lab Practical 2

aim :- write a c program on operator and expression

Theory

write a program to create a dynamic calculator

Algorithm

step 1 :- declare a variable name for two first and second number as a integer

step 2 :- now use scan f function to receive input from use

step 3 :- now to add two number given by user use the expression num 1 + num 2

step 4 :- now to subtract two number given by user expression num 1 - num 2

step 5 : again use expression num 1 * num 2 if user wishes to multiply the two inputs

step 6 :- use expression num 1 / num 2 if user wishe to divide the two point

step 7 :- now use print function to display outpu

6 Write a program in C to explain ternary operator

algorithm

step 1: declare variable as a and x

step 2: store the value of a as 5 and store the value of b and 5

step 3: now to compare between who is greater use ternary operator x to find

step 4: use print f function to display output

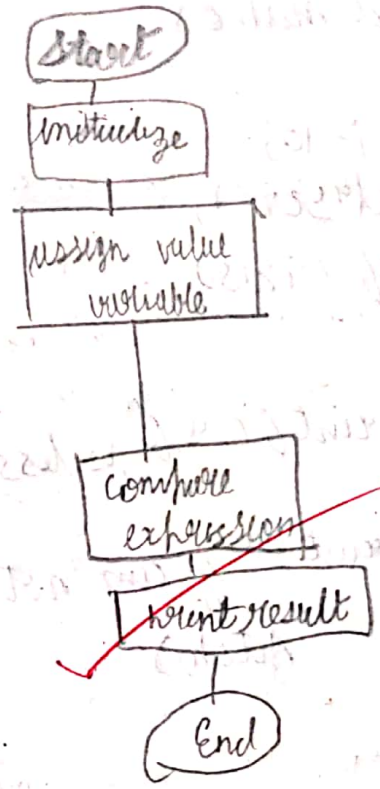
conclusion :- These program helps us in having better understanding about operator and expressi

Ahmad

b) code

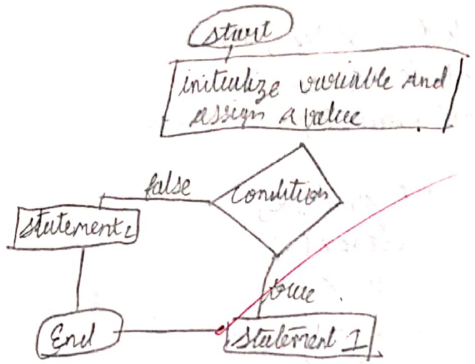
```
#include <stdio.h>
#include <conio.h>
  void main ()
  {
     int a, b, x;
      clrscr();
      a = 5
      b = 15
      x = (a>b) ? a = : b;
        printf(x);
        getch();
     }

output
  15
```



as

```
# <stdio.h>
#<.conio.h>
    void main()
{
   int i=10;
      clrscr();
      if (i>15)
      {
      printf("i is less than 15 \n");
      }
      printf("i am not in if \n");
         getch()
}
```



output

i am no in if

b) code

```
#include <stdio.h>
#include <conio.h>
      int i=20
       clrscr();
       if (i<15)
       {
       printf("20 is smaller than 5 \n");
       }
       else
       {
        printf("20 is greater than 5\n")
       }
       getch()}
```

Output

20 is greater t

practical 3

aim : write a program in c on decision statement (if, ifelse nested if)

Theory:

a) write a program in c to explain if statement

algorithm

step1: declare a variable as integer and integer its value i.e 20

step2: now to complex wheathear 20 is greater then 15 use if statement

step3: if the conditional is true print that 20 is less than 15 & if conditional is less than 15 is false skip the if statement and print and in if

b) write a program in c to explain if else statement

step 1:- declare a variable as integer and assign its value i.e 20

step 2:- now to compare the given value if its greater or not use if else conditional statement

step 3:- if conditional is true the print 20 is is less then 15 or if conditional is true then print 20 greater then 15

1) write a program in C to explain nested if statement algorithm

Step 1:- declare a variable as an integer and assign

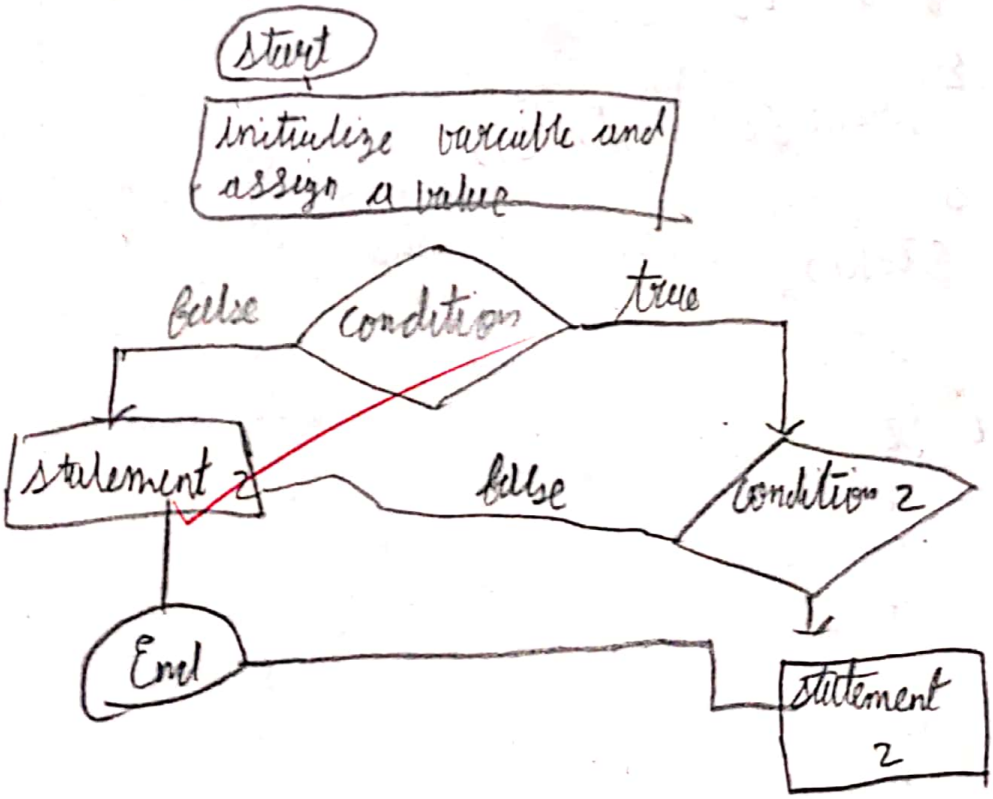
Step 2:- now use nested if logic to compare it given is greater or not

Step 3 :- if first condition is true then go to second condition if second conditional is also true then print that 20 is greater than 15 and 12 if one of conditional are not true then skip the part and print 20 is greater than 15 and 12

Conclusion: These program help us to understant the working of it and nested if conditional statement

Namedl

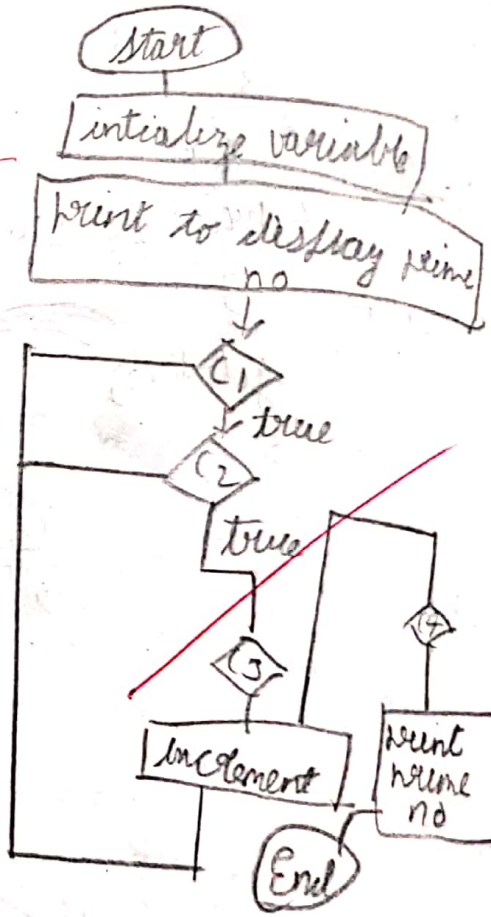
```
#include <stdio.h>
#include<conio.h>
  void main
{ int i=20:
  clrscr():
   if (i<15)?
   { if (i<12)
        { printf(" 20 is less than 15 and 12 \n ");
          }
    }
     else
  { printf(" 20 is greater than 15 and 12 \n");
    }
   getch();
   }
```



Qs coding

```
#include <stdio.h>
#include<conio.h>
void main()
{
  int n, i, a
   clrscr()
  printf("the prime no are");
  for(i=2 ; i<20 ; i++)
  {
     a=0
     for(n=2; n<(i+1) (2 ,n++)
     {
       if (i%n ==0)
       {
         a++;
       }
     }
     if (a==0)
     {
       printf("%d n");;)
     }
     getch();
  }
```

Output :
2
3
5
7
11
13
17
19



Practical no :- 4

aim :- to display the prime number using for loop

algorithm :-

step1 :- initialise the variable out of which two are loop variable and one are count variable

step2 :- initialise a for loop within the loop in step2 that goes to 2 to the first variable %2

step3 :- nest another loop within the loop in step 2 that goes to 2 to the first variable %2

step4 :- use the if conditional statement to check whether (first loop variable or 2nd loop variable) if true increment count variable by 1

step5 :- come out of the second loop and check whether the count variable is 0 if true print the number

step6 :- terminate the program.

Conclusion

prim number were displayed using for loop

b) aim :- write a c program of fibonacci series

algorithm

step 1 : start turbo c

step 2 :- declare the variable $n_1, n_2, n_3, i,$ number

step 3 :- initialize the variable $n_1=0$ $n_2=1$, number=0

step 4 :- Enter the no of term of fibonacci series to be printed

step 5 :- print first 2 terms of series as $n_1=0$ and $n_2=1$

step 6 :- use the for loop for following step $n_3=n_1+n_2$ $n_1=n_2$ $n_2=n_3$ increase the value of element each time by 1

step 7 :- print the value of number

step 8 :- End

conclusion :- we have successfully executed fibonacci series

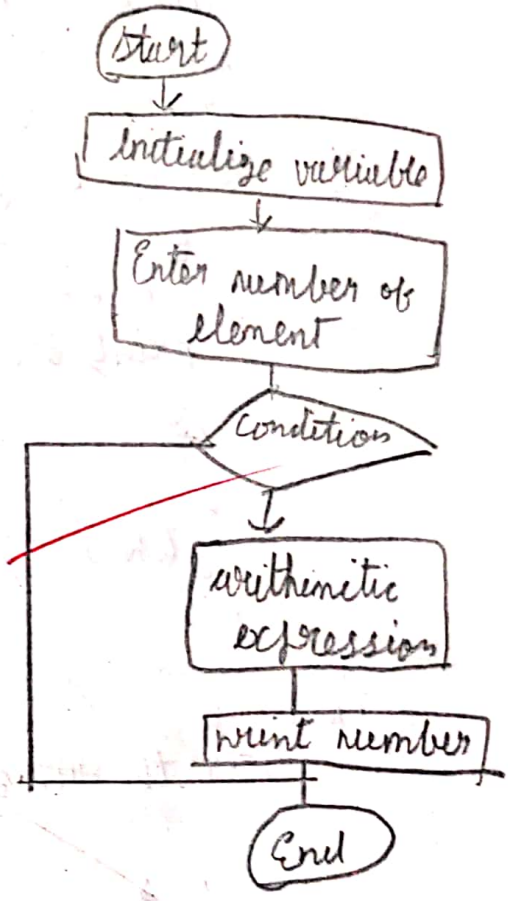
```
#include <stdio.h>
#include <conio.h>
void main
{
int n1=0 n2=1, n3 ,i ,number ;
clrscr();
printf(" Enter no of element :\n");
scanf("%d", &number);
printf("%d", &number);
for(i=2; i<number ;++i)
{
n3=n1+n2
printf("%d", n3);
n1=n2
n2=n3
}
getch();
}
```

output

Enter a number

4

0 1 1 2

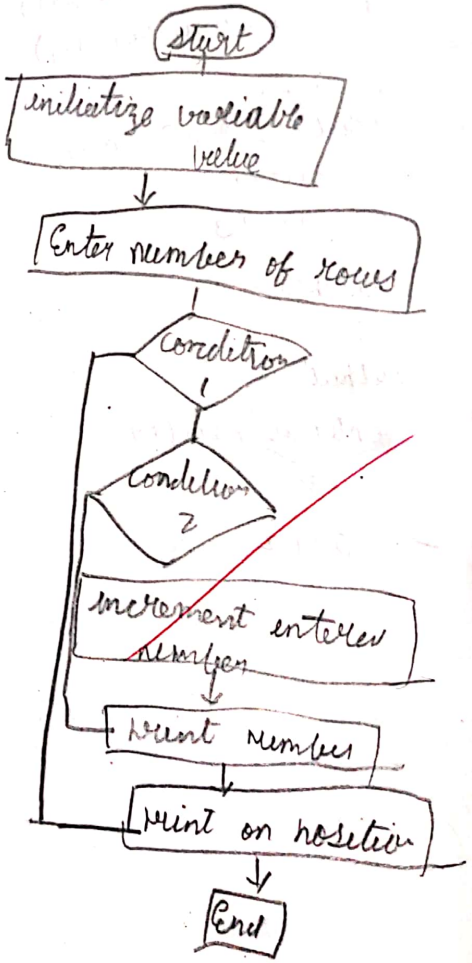


```
#include <stdio.h>
#include <conio.h>
void main()
{
  int n=0, r, i, j;
  clrscr();
  printf("Enter the number of rows ");
  scanf("%d", &r);
  printf("\n");
  for (j=0; j<=1; j++)
  {
    n++;
    printf("%d", n);
  }
  getch();
}
```

output

Enter the ~~Number~~ no of row

```
1 2 3
4 5 6
7 8 9 10
11 12 13 14 15
```



Write a C program on following expression

1
2 3
4 5 6
7 8 9 10
11 12 13 14 15

algorithm

step 1 :- start the turbo C program

step 2 :- declare the variable rows i, j, number = 1

step 3 :- display the number of rows

step 4 :- now create nested for loop i=1 i<=row, i++

step 5 :- now create number as per user enter the sequence from i=1

step 6 display the number as per user enter the sequence from i=1

step 7 :- increment number from 1

step 8 :- display the space

step 9 :- End

conclusion :- Thus we seddenly execute expression on turbo C

aim : C program to find largest array number using array

algorithm:

step 1 :- start turbo C application

step 2: declare the variable and integer array a[10]

step 3:- Enter the for loop at i=0 i<10 and give the value of a[i] till i<10 and the for loop

step 4:- Enter the for loop at i=0 i<10 use if conditioned statement to check if a[0] < a[i] if true put a[0]=a[1]

step 5:- run the above for loop for i<10 exit the loop.

step 6:- terminate the program

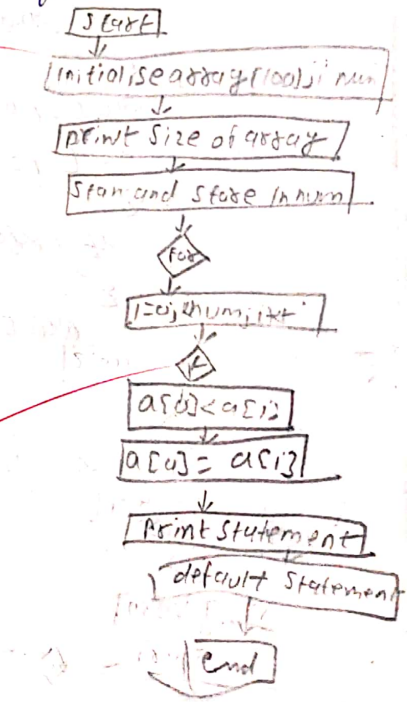
```
#include<stdio.h>
#include<conio.h>
{
  int a[10],i,j
    clrscr()
    printf("Enter the element of the list");
     for(i=0;i<10;i++)
     {
       scanf("%d",&a[i]);
     }
     for(i=1,i<n,i++)
     {
        if(arr[0]<arr[i])
           arr[0]=arr[i]
     }
     Printf("Largest Element=%d",arr[0]);
        getch();
}
```

output A

12 2 1
23 12 22
2 35 100
3

the largest no is 100

flowchart



```
#include <stdio.h>
#include <conio.h>
void main()
{
int array[100],i,num;
printf("enter the size of array\n");
scanf("%d",&num);
printf("Enter the element of array\n");
for(i=0;i<num;i++)
{
scanf("%d",&array[i]);
}
printf("Even no in the array are\n");
for(i=0;i<num;i++)
{
if(array[i]%2==0)
{printf("%d""\t",array[i]);
}}
printf("\n odd no. in the array\n");
for(i=0,i<num,i++)
{
if(array[i]%2!=0)
{
printf("%d",array[i]);
}
}
getch();
}
```

aim : write C program to print the number of odd and even number in the array

algorithm

step 1 :- create an array list it size from user and defined and define element using loop

step II :- display the size of array

step III :- display the element of array entered by user

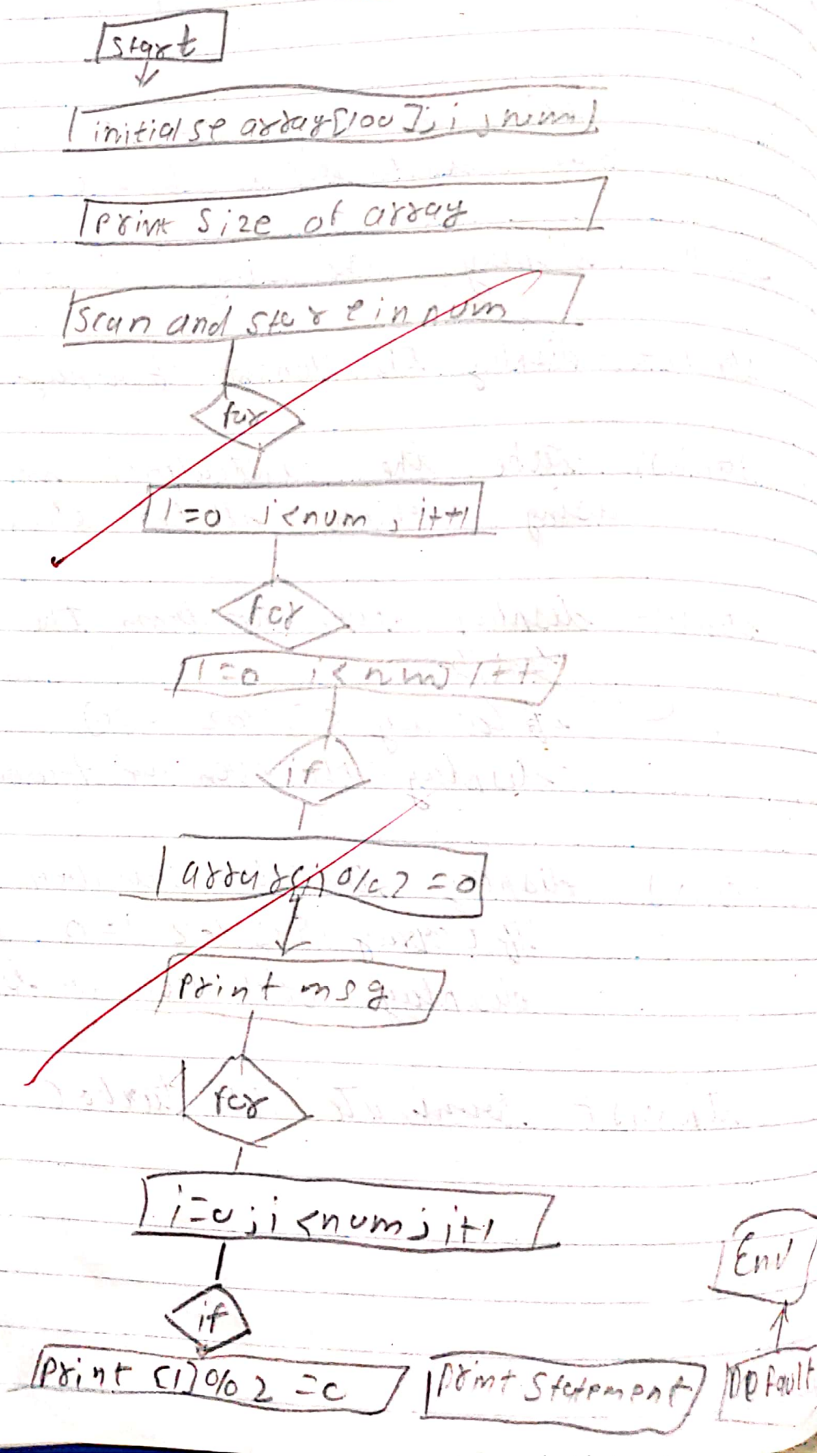
step IV) : take the initializer in a for loop using which all the element of array exist

step V :- display even no from the array from for loop
if (array [i] %2 == 0)
display the even no from the given array

step VI) display the odd number
if (array [i] %2 != 0
display odd number from array

step VII) :- terminate the turbo C.

Flowchart B :-



output B

Enter the size of array:

5

Enter the element of array

35

5

7078

123

45

Even no in the array: 35 7078

Odd no in the array : 51, 22, 45

code C

```
#include <stdio.h>
#include <conio.h>
void main
{
  int n, i;
  float num[100] sum = 0.0, avg;
  clrscr();
  printf ("Enter the no of element");
  scanf ("%d", &n)
  for (i=0; i<n, i++)
  {
    printf ("Enter no %d", i++)
    scanf ("%f", &num[i]);
      sum = sum + sum[i];
  }
  avg = sum/n;
  printf ("average = %f", avg);
  printf ("sum = %f", sum);
  getch();
}
```

algorithm

step 1:- start turbo c application

step 2:- initialise the int & variable a[100], num, and float variable sum=0 and average

step 3:- start the user for the length (<100 and store the value using scanf.

step 4:- put avg = sum/num

step 5:- Print the value of sum & avg

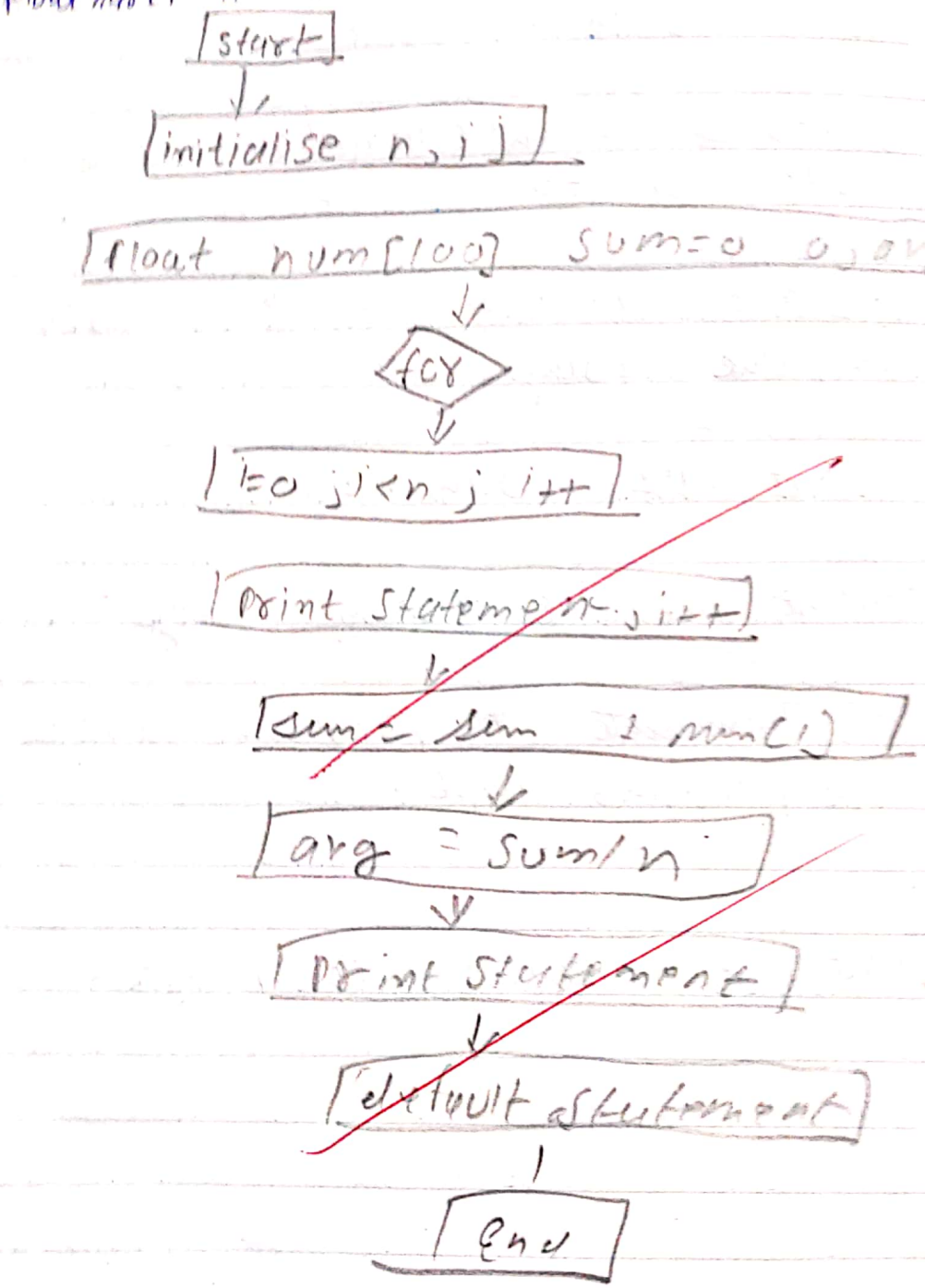
step 6:- Terminate the program source code output → previous page.

conclusion

Thus, we have executed the program successfully

Shrsodi

Flowchart:-



Practical No :- 6

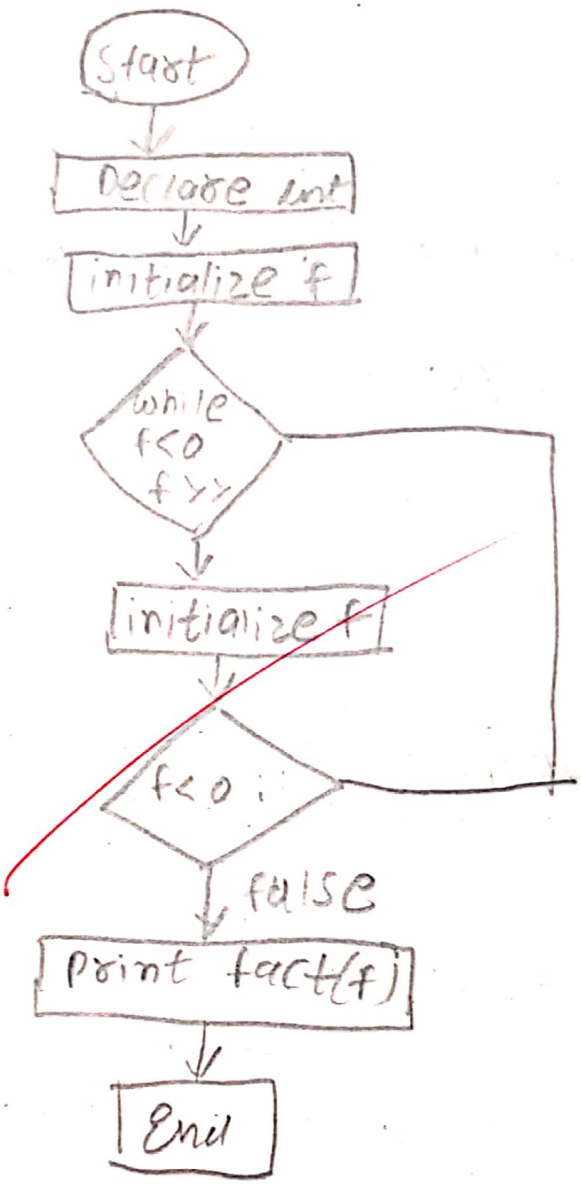
Coding a

```
#include <stdio.h>
#include <conio.h>
  void main()
{
    int f;
    clrscr();
    printf("Enter a number to find the factorial of ");
    scanf("%d", &f);
    printf("%d", fact(f));
    getch();
}
int fact(int n)
{
    if (n>=1)
    {
      return n * fact(n-1);
    }
    else
    {
      return 1;
    }
}
```

output

Enter a number to find the factorial of 5

120



aim:- C program to find factorial of a number using recursion

& algorithm

step 1:- start turbo c

step 2:- declare the int variable factorial

step 3:- use if conditioned statement and return factorial and use else statement for returning

step 4:- declare int variable n, a

step 5:- use print statement for taking input from used

step 6:- factorial of n is a

step 7:- use default statement

step 8:- display the output

step 9:- terminate the program

B) Aim :- C Program to show the use of getch() function

algorithm

step 1:- start turbo c

step 2:- initialize char ch

step 3:- use getch function for ch

step 4 use getche function for che

step 5:- use greater function

step 6:- terminate the function

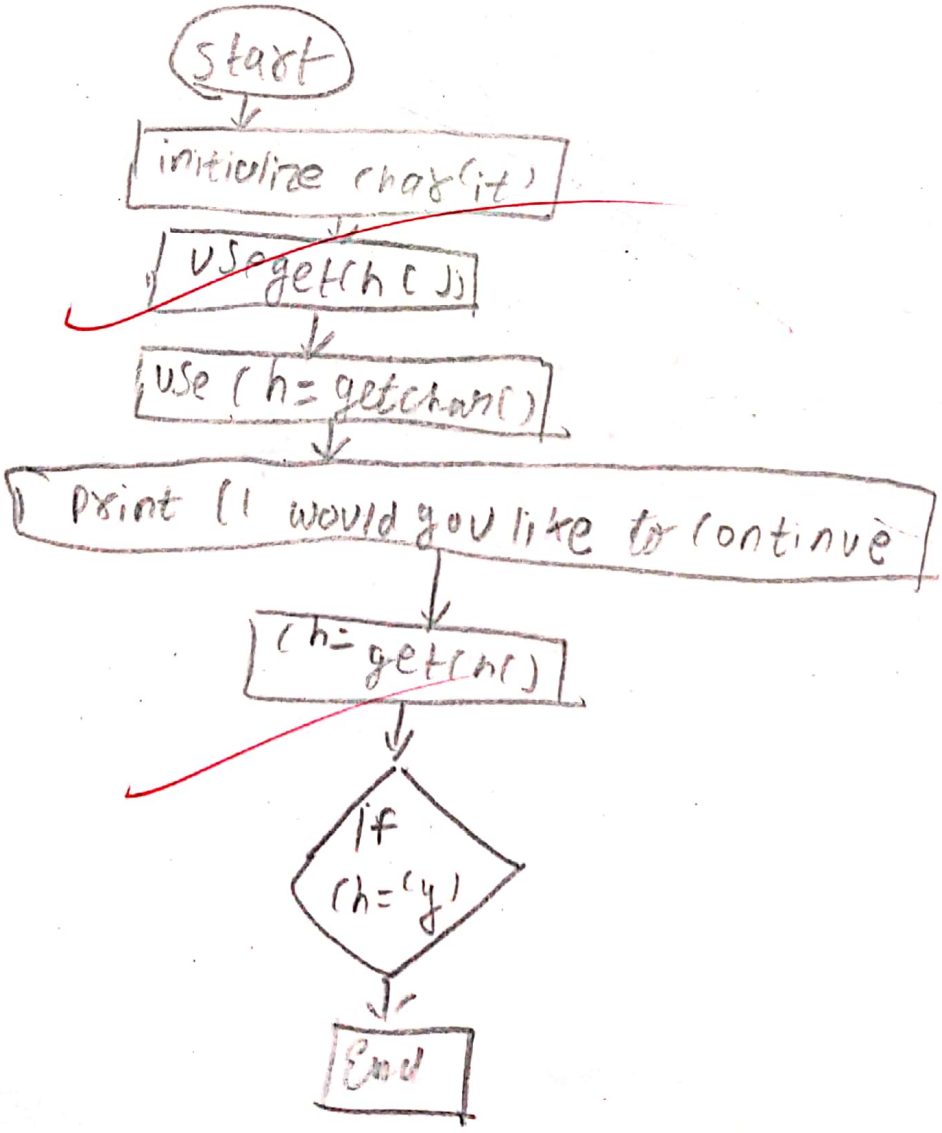
coding b

```
#include <stdio.h>
#include <conio.h>
void main()
{
  char ch;
  clrscr();
  printf("\n press any key to continue ")
    getch();
  printf("\n Enter on alphabet;");
  ch=getche();
  printf("\n Enter continue Y/N");
    getchar();
}
```

3

output

press any key to continue
Enter an alphabet=a
continue Y/N y

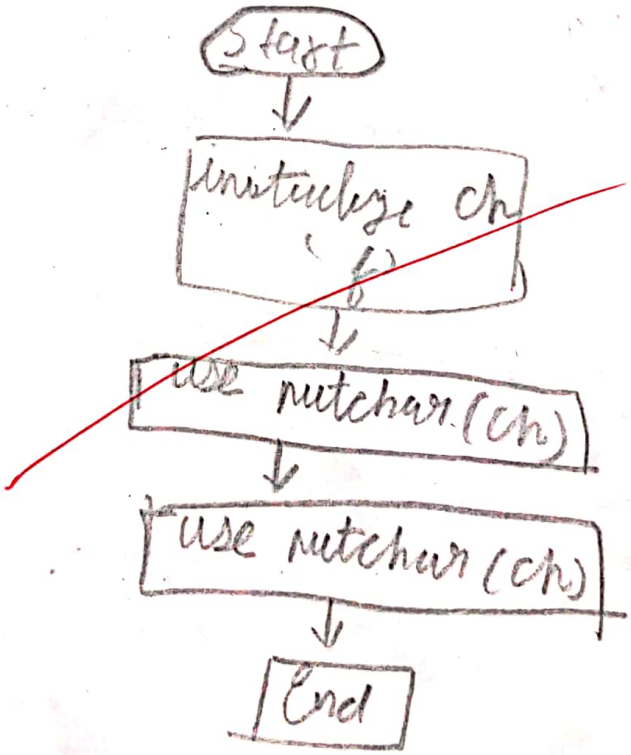


coding c

```
#include <stdio.h>
#include <conio.h>
void main()
{ char ch;('f');
clrscr();
putch(ch);
putchar(ch);
getch();
}
```

c) output

bf



1) aim : c program to show the use of alphabet function

step 1 :- start turbo c application

step 2 :- initialize char ch as b

step 3 :- use putchar function

step 4 :- use putchar function

step 5 :- use getchar function

step 6 :- terminate the program

conclusion :- Thus we have executed program successfully

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practical no7

aim:- pointers

algorithm

step1 start the turbo C++ application

step 2 declare a function prototype with two integer pointer as argument before entering main()

step3 declare two variable and accept the values from the user print the repective value using printf()

step4 pass the address of the variable as argument for the function

step5 print the replace value of the variable

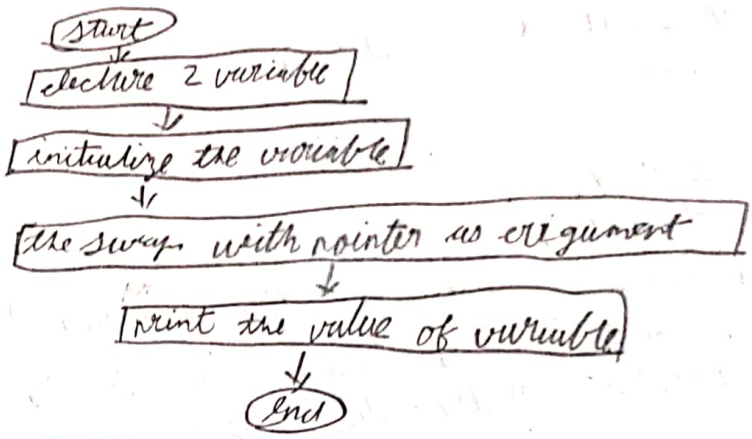
step6 use the above swapping algorithm in the function definition but instead of normal variable use

Code

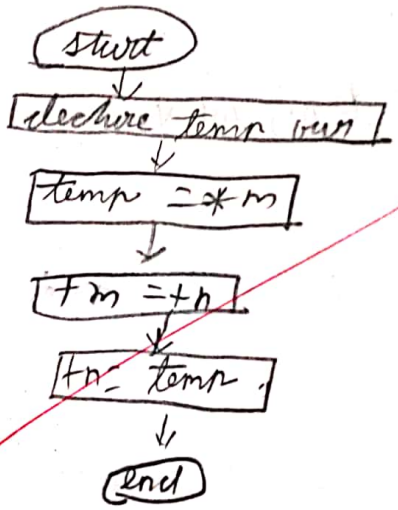
```
#include <stdio.h>
#include <conio.h>
void swap (int *m, int*n)
void main()
{
    int x,y;
     clrscr();
    Printf("enter the two number") to be swapped:");
    scanf("%d %d", &x &y);
    Printf("The value before swapping are %d and %d
            Respectively x, y);
     getch();
}
    void swap (int *m; int *n)
{
  temp=*m;
  *m = *n;
  *n = *temp;
}
```

flow chart

Q8.



swap (&m, &n)



output

enter 2 no to be swapped: 29
9 9

the no before swapping are 29 and 9 9
the no after swapping are 9 9 and 2 9.

11) sorting of array using pointer

algorithm

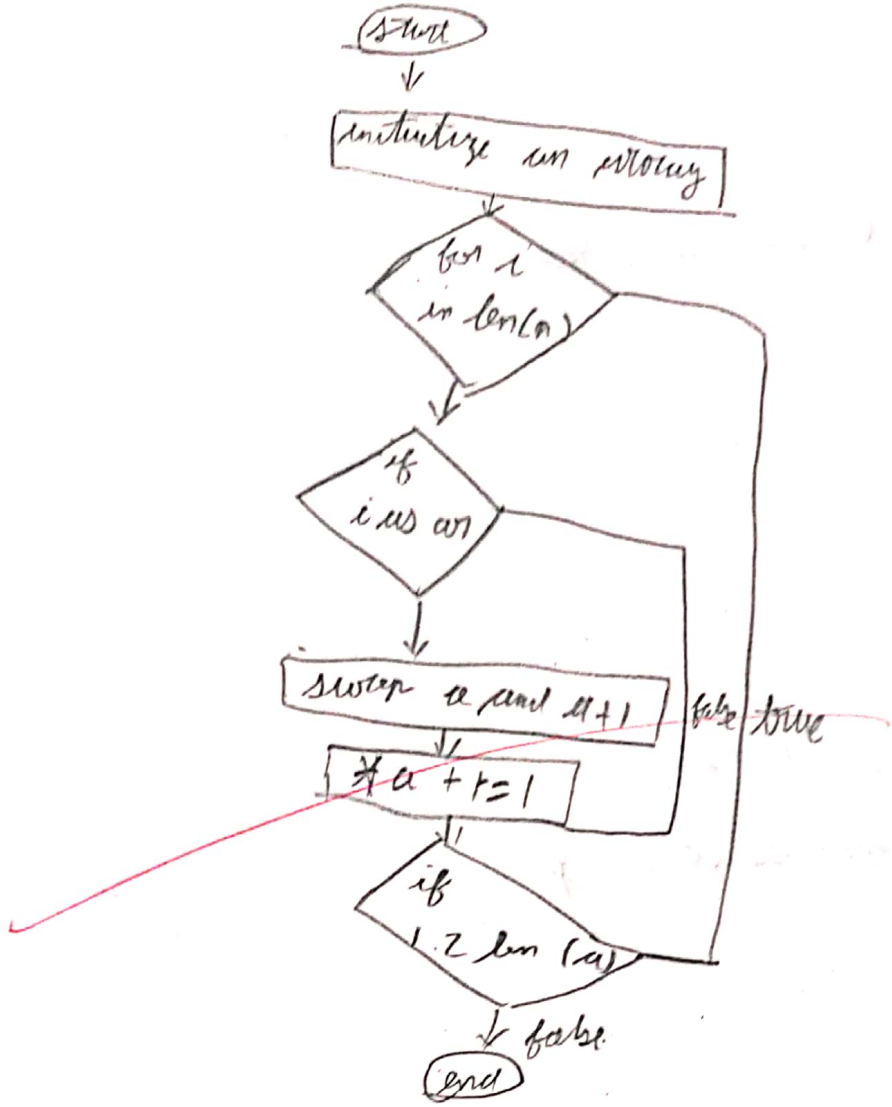
step 1 :- initialize an integer array and temp varia

step 2 :- run a nested loop of i=0 len(a) and of j
to len(a)-i

step 3 :- if a[j] > a[j+1] swap the two values using basic swapping logic

step 4 :- print the sorted array

step 5 :- terminate the program



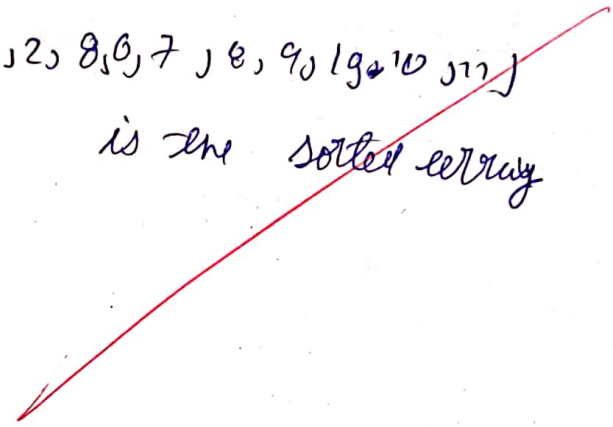
output

insert element into the array

1
6
7
8
2
9
10
12

{1, 2, 8, 6, 7, 8, 9, 10, 12}

is the sorted array



source code :-

```
void sort (int n, int *n)
  # include <stdio.h>
  #include <conio.h>
    void main ()
{
    int a[10]; i; temp;
      clrscr();
      for (i=0; i<10; i++)
        {
          for (j=0; j<10; j++)
          {
            if (*a > *a+1)
            {
              temp =*a+1;
              *a+1 = *a;
              *a = temp;
            }
          }
        }
      }
printf ("\n\n The sorted array : a);
getch();
}
```

iii) aim :- one dimensional array representation using pointers

algo

Step1 :- open turboc7 program

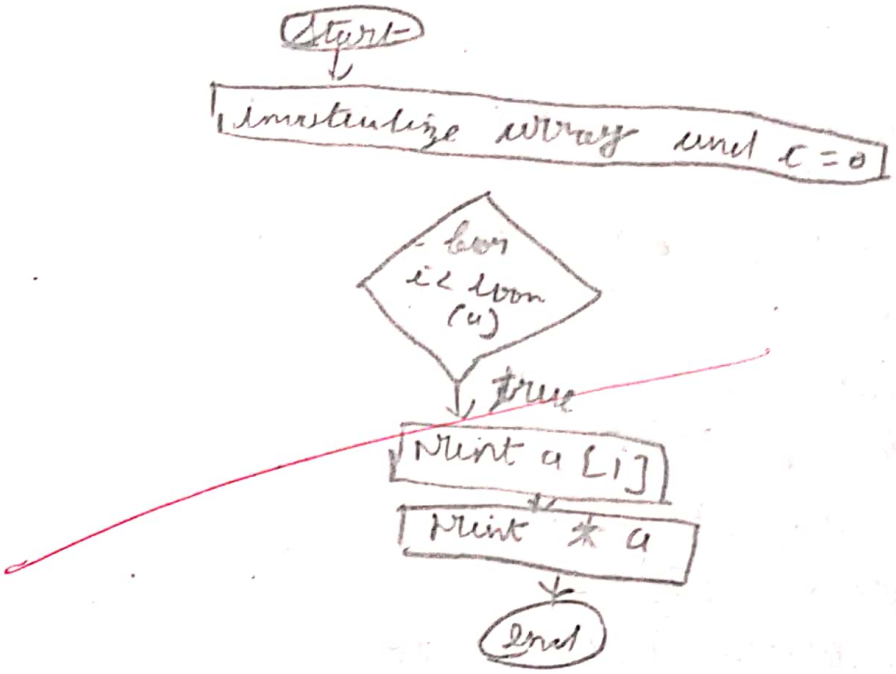
step2 :- initialize an integer array and a variable

step3 :- Run a while loop with i=0 to length of array

step 4 :- print the whole data of the array and then use pointer to print array location

step5 :- terminate the program

4 Flowchart



AA

output

the address of [0] = 65518

the value of a[0] = 7

the address of [1] = 65519

the value of a[1] = 8

the address of [2] = 65520

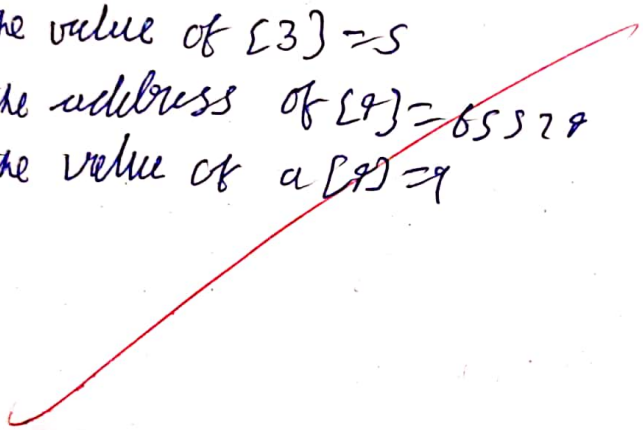
the value of [2] = 4

the address of [3] = 65522

The value of [3] = 5

the address of [4] = 65528

the value of a[4] = 4



```
#include <stdio.h>
#include <conio.h>
void main()
{
int a[5] = {7, 9, 4, 8, 23};
clrscr();
int *ptr;
int i=0;
ptr = &a[0];
while (*ptr != '\0');
{
printf ("\n the address of a[%d] = %u", i, ptr);
printf ("\n the address of a[%d] = %d", i, ptr);
ptr ++;
i++;
}
getch();
}
```

conclusion

we have successfully executed the program

Ahmadi

Practical 8

Aim :- Create a simple structure named as student that holds following variable : id CGPA name

algorithm

Step 1:- start turbo C application

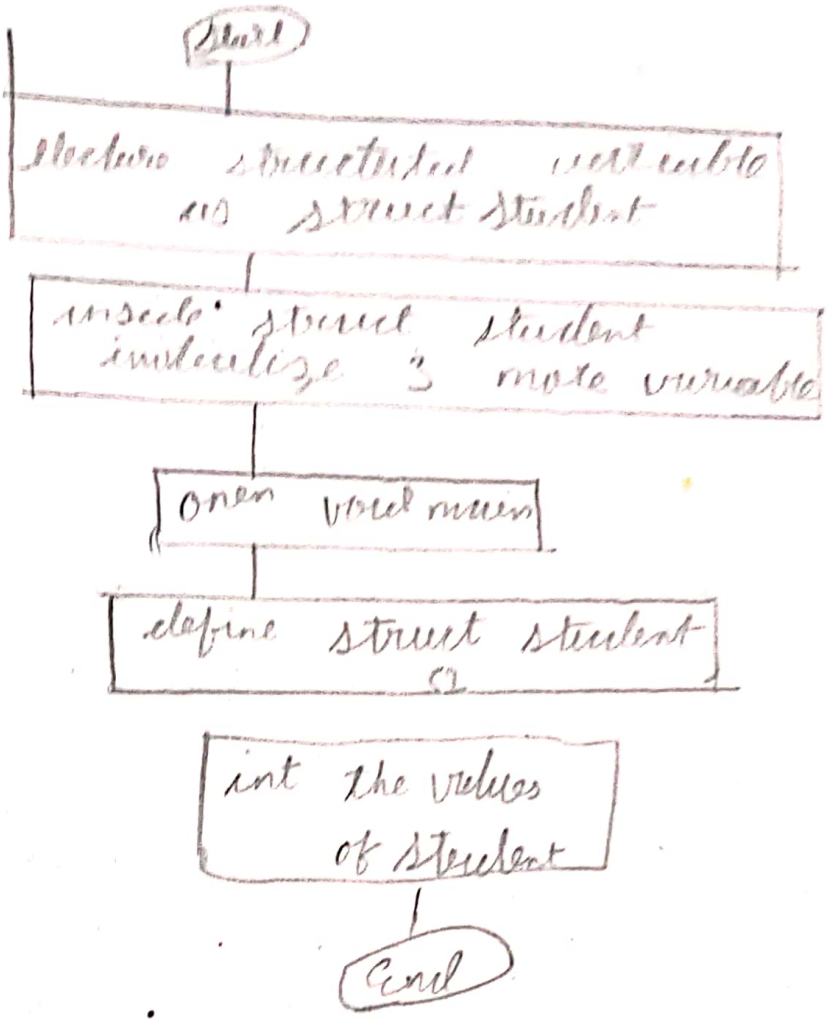
Step 2:- declare the structure variable as 'struct student'

Step 3:- initialize the struct student with 3 more variable inside it as 'int id', 'float cgpa' 'char name[10]'

Step 4:- now inside void main() define struct student s1;

Step 5:- print the detail of the student such as id, cgpa, name

Step 6:- terminate the program



OR :

output :- Enter id CGPA and name of student
id=1
CGPA = 8.333
name= Yash

source code:

```
struct student
{
    int id;
    float CGPA;
    char name[10];
};
void main()
{
struct student s1;
printf("Enter id ,CGPa and name of student");
scanf("%d %f %s", &s1.id, &s1.cgpa, s1.name);
printf("\n id = %d", s1.id);
printf("\n CGPa = %f", s1.CGPa)
printf("\n name = %s", s1.name)
```

B

aim :- wap to which will demonstrate use of structure and function

algorithm

step 1:- start turbo C++ application

step 2:- declare the structured couble as struct student

step 3:- initialize the struct student with two more variable (int rodi and char name [10])

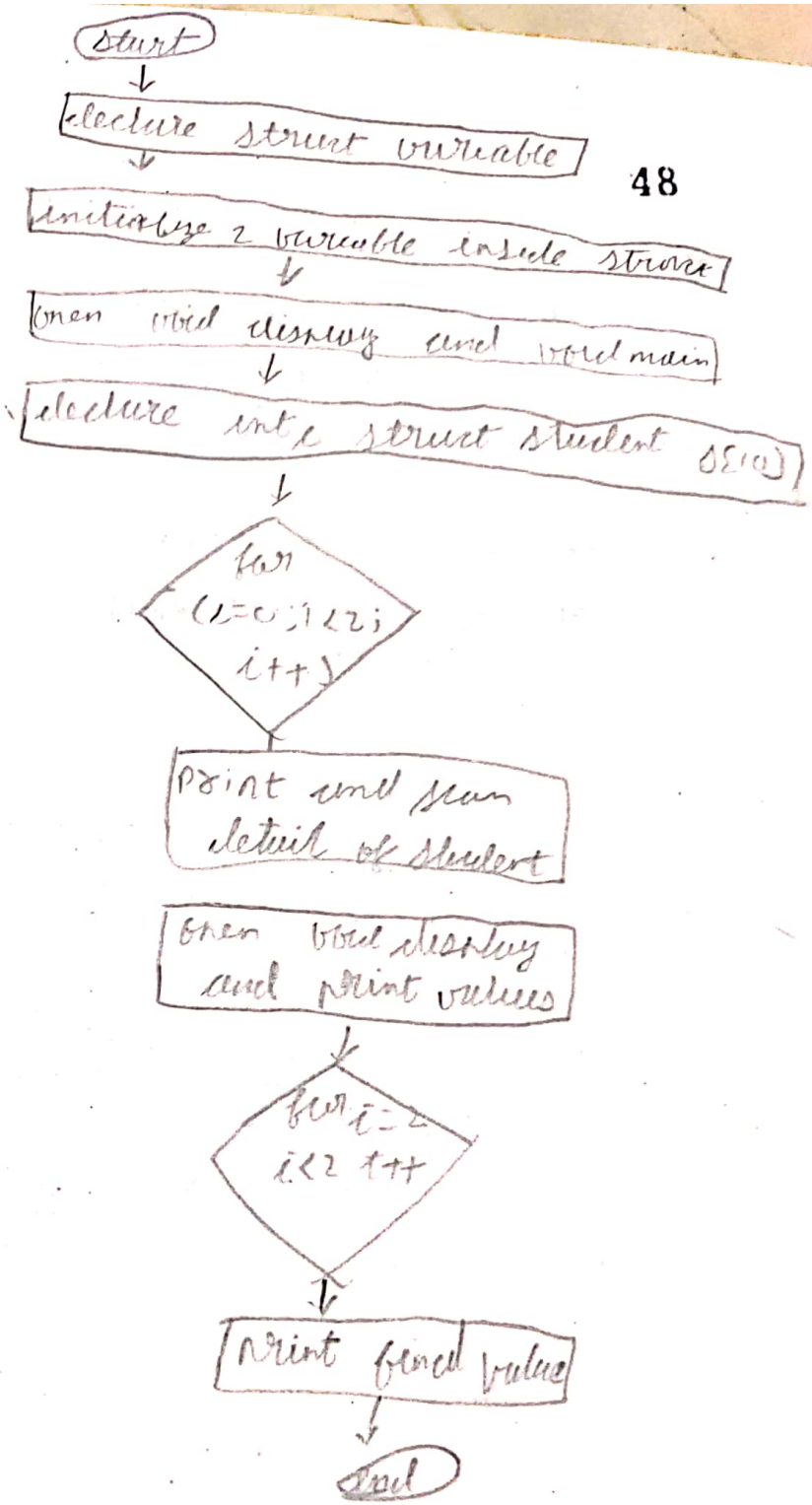
step 4:- now inside void display and void main declare it int i, struct student [10]

step 5:- use the 'for' loop for entering declare to student upto 2 student and not more then two

step 6:- print the detail of student

step 7:- open void display seeguen and print the value using for condition and printf

step 8:- terminate the program



output

enter detail of 2 student
enter roll and name 22 om
enter roll and name 33 prakash
xxxxxx xxx
Roll = 22 name = om
Roll = 33 name Prakash

code

```
#include <stdio.h>
struct student
{
    int roll
    char name[10];
};
void display (struct student s1[10]);
void main ()
{
 int i;
 struct student s[10];
  clrscr();
printf("\n Enter detail of 2 student");
 for for(i=0, i<2, i++)
 {
    printf ("\n enter roll and name");
    scanf("%d %s", &s(i).roll, s[i].name);
 }
   display (s);
   getch();
}
void display (struct student s1[10])
{
    int i;
printf ("\n .... \n");
 for (i=0; i<2, i++)
 printf("\n Roll = %d \t name = %s", s1[i].roll, s1[i]
}
```

e1

(aim :- Create union to store student in the form of roll no stud name die percentage contact no inside the data and print in struct in a command

algorithm

1 start turbo c++ application

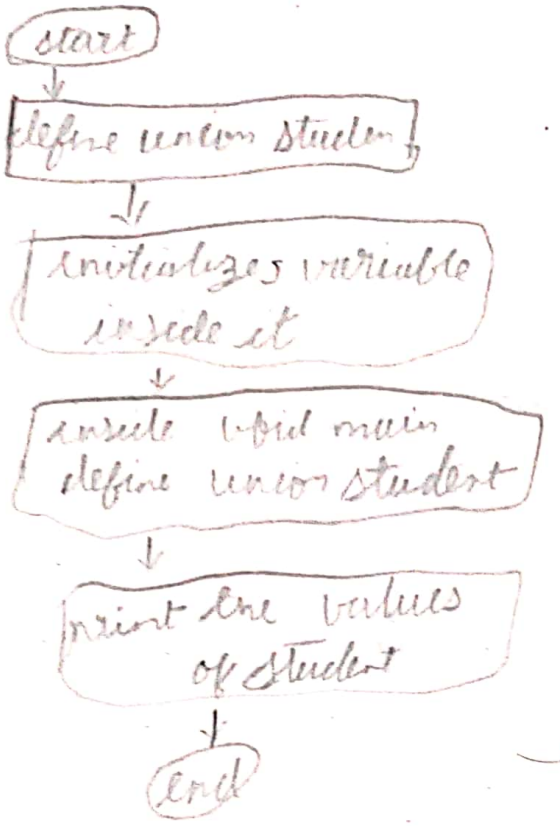
2 define the union as student (union student)

3 initialize the union statement student with 5 variable namely rollno stud name dir percentage contact no

4 now inside void main function define union student

5 print the values of the student

6 terminate the program



02

Output

name:- aryan

Rollno :- 10

percentage = 10

contact no = 8652011101

div = A

code

```
#include <stdio.h>
#include <conio.h>
union student
{
    int roll;
    char studname[10];
    char div[5];
    float percentage;
    long contact no;
};
void name()
{
    union student s1;
    clrscr();
    s1.name, "nyuan"
    printf("name = %os"); s1.studname);
    s1.roll=55;
    printf("Rollno = %d", s1.roll);
    s1.div "A"
    print("div = %s" s1.div);
    s= percentage = os
    printf("percentage = ", s1.percentage)
    s= (contact no') = 9*520 +*11
    Printf (contact = %ld ; s1.contact no);
}
```

Practical 9

Aim:- Wap to copy one string into another string

Algorithm

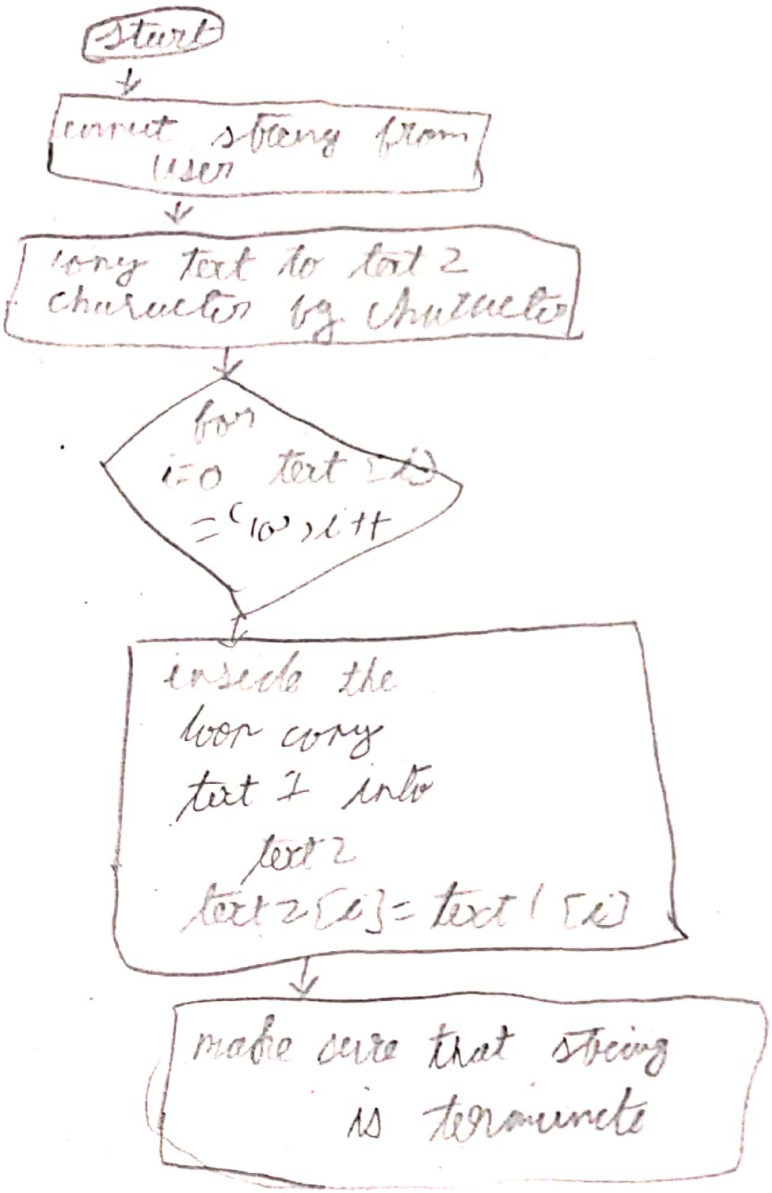
Step 1 :- input string from user and store it to some variable say text 1

Step 2 :- declare another variable to store copy of first string in text 2

Step 3:- Run a loop from 0 to end of string the loop structure should be like
for (i=0; text2[i] = '\0'; i++)

Step 4:- inside the loop for each character in text1 to text2 say text2[] text1[]

Step 5:- finally after loop make sure the content string with null character i.e text2[i] = '\0';



output

Enter any string there are 7 days in a week
first string there are 7 day in a week
first string there are 7 day in a week
total character 26

Code

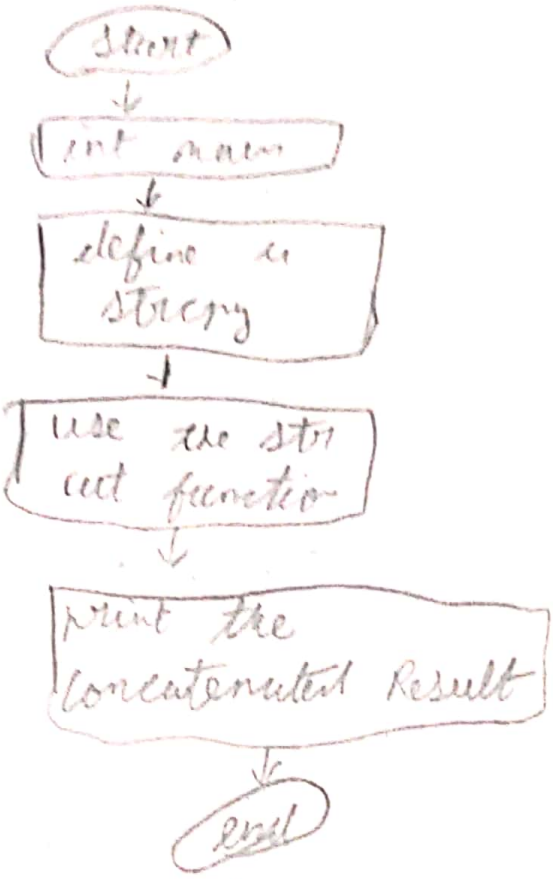
```
#include <stdio.h>
#define max_size 100

int main()
{
    char text1 [max_size]
    char text2 [max_size]
     int ()
    printf ("enter any string ")
      gets (text1)
      for (i=0; text1 [i] != '\0'; i++)
      {
          text 2[i] = text 1 [i];
      }
    text 2[i] = '\0'
    printf (" first string copy %s\n" text 1);
printf (" first string = %s \n", text 2);
printf (" character copied = %d \n", i);
    return 0
}
```

B

aim:- write a program which will demons
trate the size of string

strcat: the strcat() function will append a co
of the source string to the end of destination
string the strcat function takes 2 argum
1) dest 2) src

the strcat function returns a pointer
(where the resulting concatenated string reside



A3

output Rahul is over 18 years old

code :

```
#include <stdio.h>
#include <conio.h>
int main (int argc (const char * char example)
{
strcpy (example, "Rahul")
strcat (example) "is 18 ")
strcat (excemple) "years old")
printf (" %s\n ", example)
```

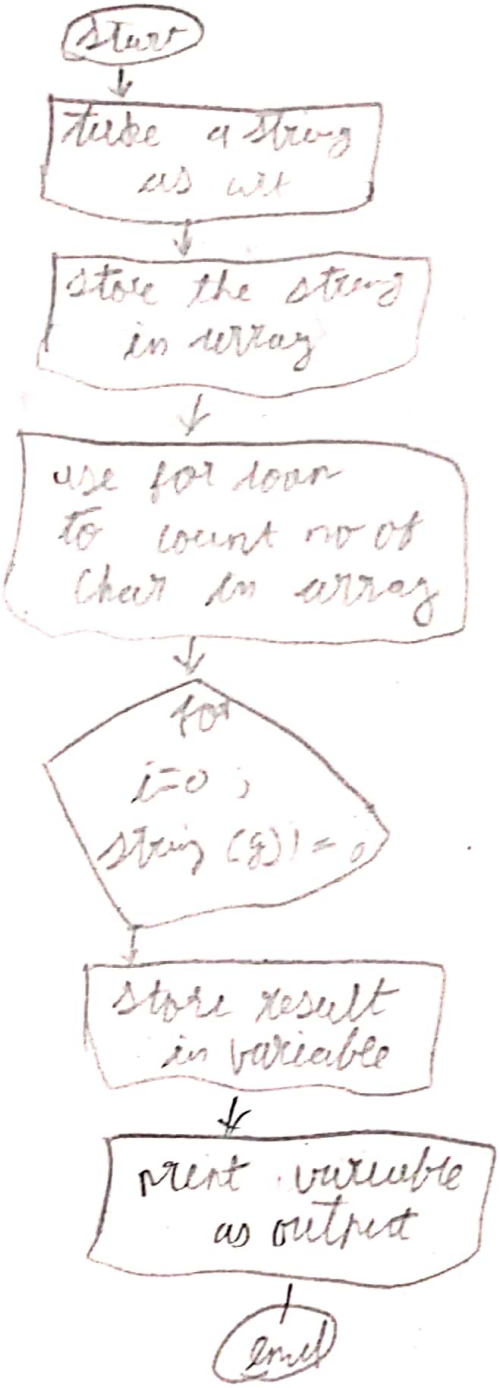
Aim :- Write a program which display the length of a string without using string function

algorithm

1 take a string as input and store it in the array

2 using for loop count the number of character in the array and store the result in the variable

3 print the variable as output



18 Output

enter a string :
it is a cold night
the length of str is the no of character in it
so the length of it is a cold night =18

code

```
#include <stdio.h>
    void main()
  {
      char string[50];
      int i, length = 0;
      printf("enter a string \n");
       gets(string)
      for for(i=0, string[i] != '\0'; i++)
          {
            length++;
          }
      printf("the len of str is the no of student n=
      printf("so the len of %s = %d \n", string
```

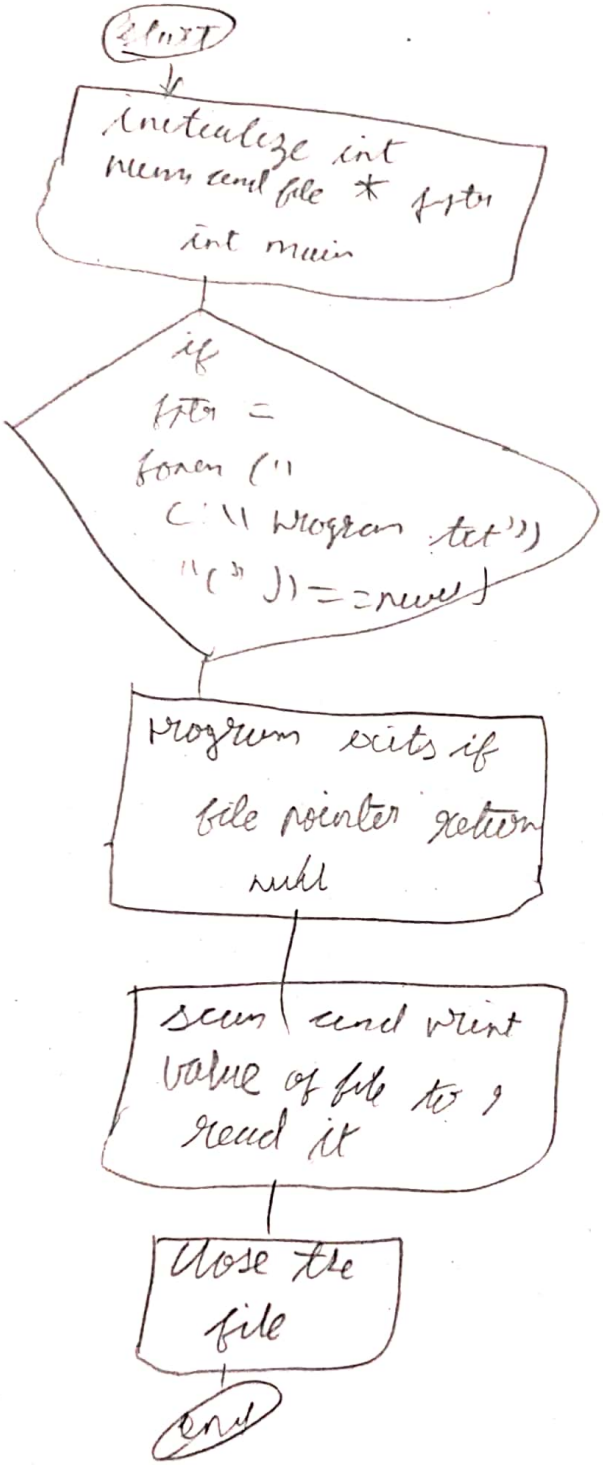
Practical 10

Aim : Program for file open file read file close

fopen() :- open a existing file or create a new file for use

fread() Reads a record from a file

fclose() closes a file



87

output

values are 87
88
89
90

code

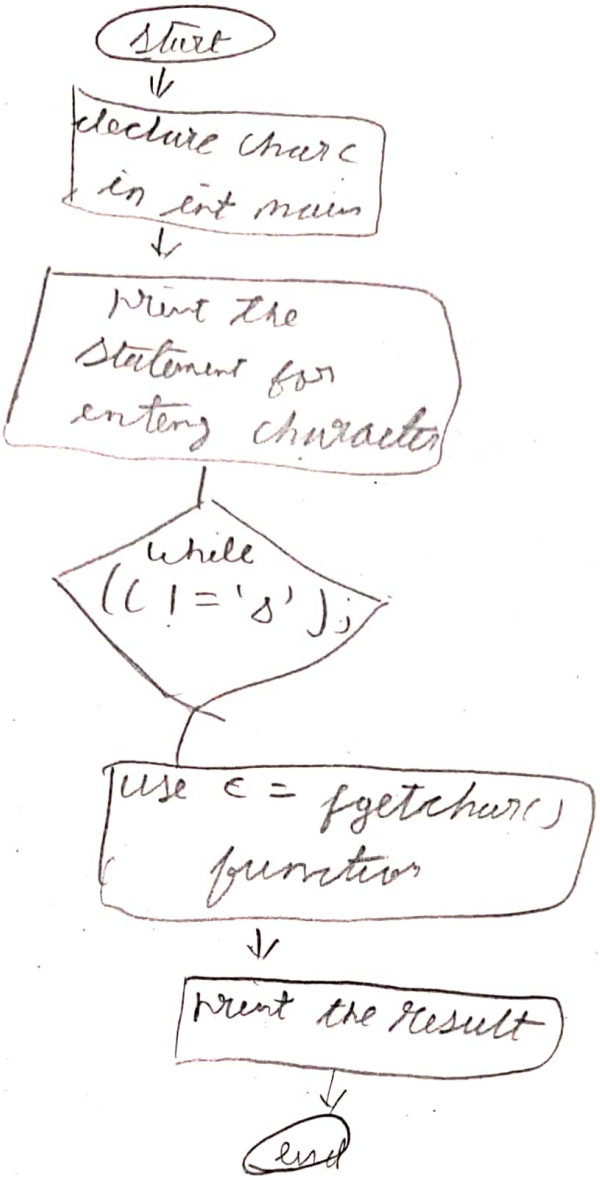
```
#include <stdio.h>
#include <conio.h>
   int main()
  {
       int num;
       file * fptr;
      if (( fptr = fopen ("C:\\program.txt", "r"))
      {
          printf "error : opening file");

          exit (1);
       }
      fscanf( Fptr; "%d", &num);
      printf ("value were = %d ", num);
          fclose (fptr);
          return 0;
       }
```

6

aim ; write for fgetc() , fgetchar(), fputchar() function

algorithm description

- fgetchar is a file handling function
- it is used to read a single character from keyboard input



03

output enter some character enter $ to exit

A

entered character is : A

B

entered character is : B

L

entered character is $

code

```
#include <stdio.h>
#include <ctype.h>
    int main ()
{
    char c
    printf ("enter some character enter to exit )
     while (c != '$');
     {
          (= fgetchar();
          printf("\n entered character is :");
           putchar (c);
           printf ("\n");
      }
       return 0
}
```

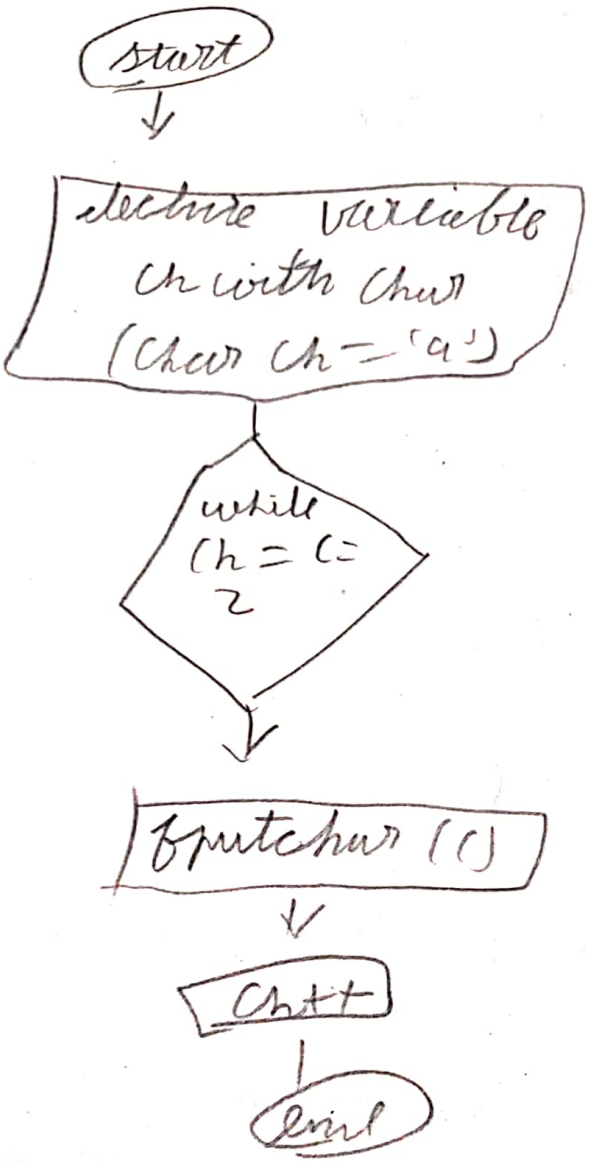
fgetc() used to read a character from a file
Read single character at a time in a program
we use fgetc() function fget.(fp)
where fp = file pointer

code

```
# include <stdio.h>
  int main()
  {
    file * fp;
    char c;
  printf("opening file test.c in read mode");
    fp = fopen("test.c", "r");
     if (fp == NULL)
  {  printf("could not open file test.c");
     return 1
   }
  printf("Reading the file test.c");
        while (1)
        {
          c = fgetc (fp);
          if (c == EOF)
             break;
             printf ("%c", c);
        }
```

output

opening the file test.c in read mode
Reading the file test
hi how are you
closing the file



fputchar()

→ file handling function in C
Used to write a character on standard output (screen)
fputchar() function is equivalent to putchar() function where char is a character variable

code:

```
#include <stdio.h>
int main()
{
    char ch = 'a';
    while (ch <= 'z')
    {
        fputchar (ch);
        ch ++;
    }
    return 0
}
```

output :- abcdefghijklmnopqrstuvwxyz