**Experiment:2 CALCULATOR**

**ALGORITHM**

**Using Pointers**

**STEP 1:** Start

**STEP 2:** Read two float numbers a,b.

**STEP 3:** ans is declared as float type for storing result

**STEP 4:** Accept the operation symbol from user and store as a choice using getchar().

**STEP 5:** Put choice inputted in the **switch** statement as switch(choice)

**STEP 6:** Put the case accordingly like case ‘+’ for addition, case ‘-’ for subtraction, case ‘\*’ for multiplication and case ’/’ for performing division. Also default choice for Invalid choice.

**STEP 7:** The used defined functions are called for particular choice given and executed using pointer defined as

(\*ptr) float, float

**STEP 8:** Result of operation performed on a and b is stored in ans variable

**STEP 9:** For printing result display function is called on ans, a ,b.

**STEP 10:** Stop

**ALGORITHM**

**Without Pointers**

**STEP 1:** Start

**STEP 2:** Read two float numbers a,b.

**STEP 3:**ans is declared as float type for storing result

**STEP 4:** Accept the operation symbol from user and store as a choice using getchar().

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**STEP 7:** The used defined functions are called for particular choice given and executed.

**STEP 8:** Result of operation performed on a and b is stored in ans variable

**STEP 9:**For printing result display function is called on ans, a ,b.

**STEP 10:**Stop

**PROGRAM**

**Using Pointers:**

#include<stdio.h>

void display(float s);

float add(int x,int y);

float subtract(int x,int y);

float multiply(int x,int y);

float divide(int x,int y);

int main()

{

int a,b;

float ans;

unsigned char c;

float (\*ptr\_op)(int,int); //

void (\*ptr\_disp)(float); //

ptr\_disp=display;

printf("Enter 2 numbers: ");

scanf("%d%d",&a,&b);

printf("Enter the Arithmetic Operation (+,-,\*,/):\n");//Selecting the arithmetic operation

scanf(" %c",&c);

switch(c)

{

case'+':ptr\_op=add;

break;

case'-':ptr\_op=subtract;

break;

case'\*':ptr\_op=multiply;

break;

case'/':ptr\_op=divide;

break;

default:printf("Invalid Operation\n");

}

ans=(\*ptr\_op)(a,b);

(\*ptr\_disp)(ans);

return 0;

}

void display(float s)//for diaplaying the answer

{

printf("Answer is %0.3f\n",s);

}

float add(int x,int y)

{

return(x+y);//returns sum of 2 numbers

}

float subtract(int x,int y)

{

return(x-y);//subtracts y from x

}

float multiply(int x,int y)

{

return(x\*y);//multiples x and y

}

float divide(int x,int y)

{

if(y!=0) //if divisor is not equal to zero display the answer

return (float)x/y

;

else//if divisor is zero then display infinite

{

printf("Answer = Infinite\n");

return 0.0;

}

}

**Without Pointers:**

#include<stdio.h>

void display(float s)//Function to display answer

{

printf("Answer is %0.3f\n",s);

}

float add(int x,int y)

{

return(x+y);//returns sum of 2 numbers

}

float subtract(int x,int y)

{

return(x-y);//subtracts y from x

}

float multiply(int x,int y)

{

return(x\*y);//multiples x and y

}

float divide(int x,int y)//divides y from x

{

if(y!=0)

return (float)x/y;

else//if divisor is 0 then display infinite

{

printf("Answer = Infinite\n");

return 0.0;

}

}

int main()

{

int a,b;

float ans;

unsigned char c;

printf("Enter 2 numbers: ");

scanf("%d%d",&a,&b);

printf("Enter the Arithmetic Operation (+,-,\*,/):\n");

scanf(" %c",&c); //Enter the operation

switch(c)

{

case'+':ans=add(a,b);

break;

case'-':ans=subtract(a,b);

break;

case'\*':ans=multiply(a,b);

break;

case'/':ans=divide(a,b);

break;

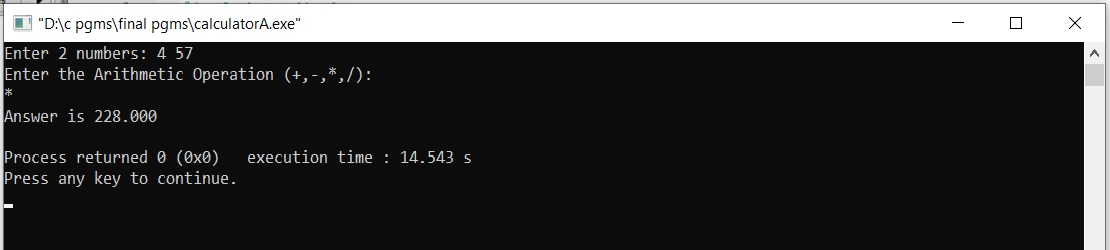
default:printf("Invalid Operation\n");

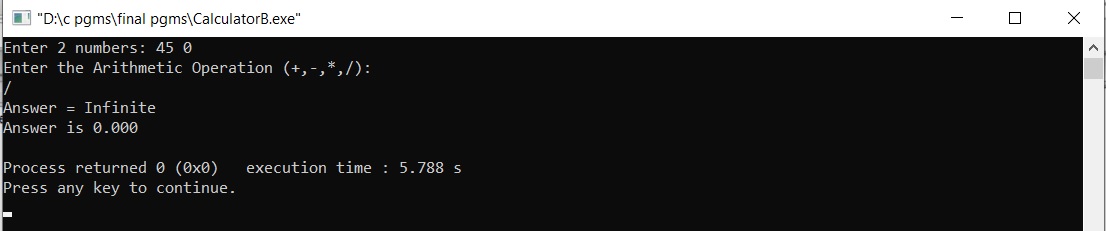
}

display(ans);//calling display function and passing ans argument

return 0;

}

**OUTPUTS:**

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