Project Report on

NUMBER EATERS (A Mental Game for Kids)

Developed & Submitted By

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(Project Level Computer Programming Couse)

Under the Guidance of

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For

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CERTIFICATE

This is to certify that **VIVEK** s/o Mr. Raj Kumar, student of Computer Programming Course of **Project Level** has prepared the report on the Project entitled *"CALCULATOR USING GRAPHICS"*.

The report is the result of his efforts & endeavors. The report is found worthy of acceptance as final project report for the Computer Programming Course for Project Level.

He has prepared the report under my guidance and I wish him all the best for his future life.

Seal
BHARDWAJ

ASHOK

(B.Com, MCA, M.Sc.(IT & CA))
Director

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Certificate

This Certificate is presented to

VIVEK S/O MR. RAJ KUMAR

for Successfully Completion of

CERTIFICATE IN ONLINE PROJECT LEVEL USING C & C++

in the duration from MAY, 2020 *To* JULY, 2020

with 'A+' *Grade. Dated on* JANUARY 01, 2021

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PROJECT REPORT

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INTRODUCTION

This project (*CALCULATOR PROJECT*) is written in C language. This project allows you input any data on which various mathematical operations can be performed.

It is like a mini calculator which can be used for teaching kids.

This project consists of a GRAPHICAL INTERFACE due to which kids might be attract towards it.

Following project allows you to **ADD, SUBTRACT, MULTIPLY, DIVIDE** numbers.

You get the output with ongoing calculations step by step so that student understand it better.

OBJECTIVE

- This project in C of **CALCULATOR** is a simple console application with computer graphics.
- The Project is specially designed to handle graphics, mathematical operations and it is a type of mental exercise.
- There comes a graphical window on the screen in which you have to enter your choice which operation you have to perform.
- Developing this project helps to reinforce many of the C and programming concepts we have met already.
- This project provide a valuable experience of design and implementation of a large program.
- It also provide a framework for a more challenging and thus rewarding, laboratory exercise.

REQUIREMENTS

1. **Software Requirements:**
    - Operating system – Windows & MS-DOS
    - Application software – Turbo C++
    - Language – C language

2. **Hardware Requirements:**
    - RAM- 2GB
    - Hard disk- 512MB
    - Processor –Any Intel processor

TECHNOLOGY USED

1. **Turbo C**

   Turbo C version 2.0 is used in this game. Turbo C is a discontinued Integrated Development Environment and compiler for the C programming language from Borland. First introduced in 1987, it was noted for its integrated development environment, small size, fast compile speed, comprehensive manuals and low price .In May 1990, Borland replaced Turbo C with Turbo C++.

2. **C Language**

   C is a general-purpose, imperative computer programming language, supporting structured programming, lexical variable scope and recursion, while a static type system prevents many unintended operations. By design, C provides constructs that map efficiently to typical machine instructions, and therefore it has found lasting use in applications that had formerly been coded in assembly language, including operating systems, as well as various application software for computers ranging from supercomputers to embedded systems.

   C was originally developed by Dennis Ritchie between 1969 and 1973 at Bell Labs, and used to re-implement the Unix operating system. It has since become one of the most widely used programming languages of all time.

   C is an imperative procedural language. It was designed to be compiled using a relatively straightforward compiler, to provide low-level access to memory, to provide language constructs that map efficiently to machine instructions, and to require minimal run-time support. Despite its low-level capabilities, the language was designed to encourage cross-platform programming

SIGNIFICANCE OF PROJECT IN LIFE

- Practical skills
- Strong memory
- Power to decide
- Idea how to behave in different environment
- Powerful tool to help children to develop certain life skiils
- Gain self confidence
- Improves hand and eye coordination
- For motivational challenges.

FUTURE SCOPE OF PROJECT

- Use Project for skills based learning
- Important as learning point of view for children
- Multilayer feature can be added.
- Virtual reality
- Graphical Interface using C.

REFERENCES

- Guided by Mr. Ashok Bhardwaj (Director, Bharti Computer Education)
- Books

  Let's play with C by Mr. Ashok Bhardwaj

CONCLUSION:

We had successfully made this PROJECT in C language which can take input from user which operation he/she want to perform. Then the software take inputs from the user and show the output in a graphical way along with the step by step ongoing calculations.

SOURCE CODE:

```
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
#include<graphics.h>
#include<dos.h>
#include<string.h>
//******** addonedigit FUNCTION TO ADD ONE DIGIT NUMBERS **********
void addonedigit()
{
 int gd=0,gm,r,num1,num2,sum,x,y,k;
 char str1[3],str2[3],str3[3],ch;
 do
 {
  initgraph(&gd,&gm," ");
  settextstyle(1,0,8);
  setcolor(4);
  cout<<"Enter first number:- ";
  cin>>num1;
  cout<<"Enter second number:- ";
  cin>>num2;
  sum=num1+num2;
  r=(num1%10) + 48;
  str1[0]=r;
  str1[1]=NULL;
  r=(num2%10) + 48;
  str2[0]=r;
  str2[1]=NULL;
  setcolor(4);
  delay(500);
  outtextxy(200,120,str1);
  delay(500);
  outtextxy(200,220,str2);
  delay(500);
  outtextxy(100,220," + ");
  line(100,320,300,320);
  for(x=400,k=0;x<600,k<str1[0]- 48;x++,k++)
  {
          setcolor(15);
          outtextxy(x,120,"|");
          x+=20;
          delay(300);
  }
  for(x=400,k=0;x<600,k<str2[0]- 48;x++,k++)
  {
          setcolor(15);
          outtextxy(x,220,"|");
          x+=20;
          delay(300);
  }
  for(x=400,k=0;x<600,k<str1[0]- 48;x++,k++)
  {
          setcolor(14);
          outtextxy(x,120,"|");
          x+=20;
          delay(300);
```

```
  }
  for(x=400,k=0;x<600,k<str2[0]-48;x++,k++)
  {
        setcolor(14);
        outtextxy(x,220,"|");
        x+=20;
        delay(300);
  }
  if(sum<10)
  {
    r=(sum%10) + 48;
    str3[0]=r;
    str3[1]=NULL;
    setcolor(14);
    delay(500);
    outtextxy(200,320,str3);
  }
  else
  {
    r=(sum%10) + 48;
    str3[1]=r;
    r=sum/10 + 48;
    str3[0]=r;
    str3[2]=NULL;
    setcolor(14);
    delay(500);
    outtextxy(150,320,str3);
  }
  settextstyle(1,0,3);
  outtextxy(20,420,"Press 0 for exit or Press any other key to continue.");
  ch=getche();
  if(ch!='0')
  {
     closegraph();
  }
  else
  {
     cleardevice();
  }
 }while(ch!='0');
}

//******** addtwodigit FUNCTION TO ADD TWO DIGIT NUMBERS **********
void addtwodigit()
{
 clrscr();
 int gd=0,gm;
 int num1,num2,sum,r,r1,x,y,k,sum1,sum2;
 char str1[3],str2[3],a[3],b[3],c[3],d[3],ch;
 do
 {
  initgraph(&gd,&gm," ");
  settextstyle(1,0,8);
  setcolor(4);
  cout<<"Enter first number :- ";
  cin>>num1;
  cout<<"Enter second number :- ";
  cin>>num2;
  sum=num1+num2;
  r = (num1%10)+48;
  str1[1]=r;
  r=num1/10+48;
```

```
str1[0]=r;
str1[2]=NULL;
r = (num2%10)+48;
str2[1]=r;
r=num2/10+48;
str2[0]=r;
str2[2]=NULL;
if (sum<99)
{
   r = (sum%10)+48;
   a[0]=r;
   a[1]=NULL;
   r=sum/10+48;
   b[0]=r;
   b[1]=NULL;
}
else
{
   r = (sum%10)+48;
   a[0]=r;
   a[1]=NULL;
   r= (sum%100);
   b[0]=r/10 +48;
   b[1]=NULL;
   r=sum/100 +48;
   c[0]=r;
   c[1]=NULL;
}
outtextxy(200,220," + ");
line(200,320,400,320);
delay(400);
outtextxy(300,120,str1);
delay(400);
outtextxy(300,220,str2);
for(x=400,k=0;x<600,k<str1[1] - 48;x++,k++)
{
        setcolor(15);
        outtextxy(x,120," | ");
        x+=20;
        delay(200);
}
for(x=400,k=0;x<600,k<str2[1] - 48;x++,k++)
{
        setcolor(15);
        outtextxy(x,220," | ");
        x+=20;
        delay(200);
}
for(x=400,k=0;x<600,k<str1[1] - 48;x++,k++)
{
        setcolor(14);
        outtextxy(x,120," | ");
        x+=20;
        delay(200);
}
for(x=400,k=0;x<600,k<str2[1] - 48;x++,k++)
{
        setcolor(14);
        outtextxy(x,220," | ");
        x+=20;
        delay(200);
}
```

```
delay(400);
outtextxy(350,320,a);
sum1 =(str1[1]- 48) + (str2[1]- 48);
if (sum1>9)
{
        r1=(sum1/10) +48;
        d[0]=r1;
        d[1]=NULL;
        delay(300);
        setcolor(15);
        settextstyle(1,0,5);
        outtextxy(310,80,d);
        settextstyle(1,0,8);
}
for(x=180,k=0;x>0,k<str1[0] - 48;x--,k++)
{
        setcolor(15);
        outtextxy(x,120,"|");
        x-=20;
        delay(200);
}
for(x=180,k=0;x>0,k<str2[0] - 48;x--,k++)
{
        setcolor(15);
        outtextxy(x,220,"|");
        x-=20;
        delay(200);
}

for(x=180,k=0;x>0,k<str1[0] - 48;x--,k++)
{
        setcolor(14);
        outtextxy(x,120,"|");
        x-=20;
        delay(300);
}
for(x=180,k=0;x>0,k<str2[0] - 48;x--,k++)
{
        setcolor(14);
        outtextxy(x,220,"|");
        x-=20;
        delay(300);
}
delay(400);
outtextxy(300,320,b);
if (sum>99)
{
  delay(100);
  delay(400);
  outtextxy(250,320,c);
}
settextstyle(1,0,3);
outtextxy(20,420,"Press 0 for exit or Press any other key to continue.");
ch=getche();
if(ch!='0')
{
   closegraph();
}
else
{
   cleardevice();
}
```

```
  }while(ch!='0');
}

//******** addthreedigit FUNCTION TO ADD THREE DIGIT NUMBERS **********
void addthreedigit()
{
  clrscr();
  int gd=0,gm;
  int num1,num2,sum,r,r1,x,y,k,sum1,sum2;
  char str1[4],str2[4],a[3],b[3],c[3],d[3],e[3],f[3],ch;
  do
  {
    initgraph(&gd,&gm," ");
    settextstyle(1,0,8);
    setcolor(4);
    cout<<"Enter first number :- ";
    cin>>num1;
    cout<<"Enter second number :- ";
    cin>>num2;
    sum=num1+num2;
    r = (num1%10)+48;
    str1[2]=r;
    r=num1%100;
    str1[1]=r/10 +48;
    r=num1/100+48;
    str1[0]=r;
    str1[3]=NULL;
    r = (num2%10)+48;
    str2[2]=r;
    r = num2%100;
    str2[1]=r/10 +48;
    r=num2/100+48;
    str2[0]=r;
    str2[3]=NULL;
    if(sum<1000)
    {
      r = (sum%10)+48;
      a[0]=r;
      a[1]=NULL;
      r = sum%100;
      b[0]=r/10 +48;
      b[1]=NULL;
      r=sum/100+48;
      c[0]=r;
      c[1]=NULL;
    }
    else
    {
      r = (sum%10)+48;
      a[0]=r;
      a[1]=NULL;
      r= (sum%100);
      b[0]=r/10 +48;
      b[1]=NULL;
      r= (sum%1000);
      c[0]=r/100 +48;
      c[1]=NULL;
      r=sum/1000 +48;
      d[0]=r;
      d[1]=NULL;
    }
    setcolor(4);
```

```
outtextxy(200,220," + ");
line(200,320,500,320);
outtextxy(300,120,str1);
outtextxy(300,220,str2);
for(x=450,k=0;x<650,k<str1[2] - 48;x++,k++)
{
        setcolor(15);
        outtextxy(x,120," | ");
        x+=20;
        delay(200);
}
for(x=450,k=0;x<650,k<str2[2] - 48;x++,k++)
{
        setcolor(15);
        outtextxy(x,220," | ");
        x+=20;
        delay(200);
}
for(x=450,k=0;x<650,k<str1[2] - 48;x++,k++)
{
        setcolor(14);
        outtextxy(x,120," | ");
        x+=20;
        delay(300);
}
for(x=450,k=0;x<650,k<str2[2] - 48;x++,k++)
{
        setcolor(14);
        outtextxy(x,220," | ");
        x+=20;
        delay(300);
}
outtextxy(400,320,a);
sum1 =(str1[2]- 48) + (str2[2]- 48);
if (sum1>9)
{
        r1=(sum1/10) +48;
        e[0]=r1;
        e[1]=NULL;
        delay(300);
        settextstyle(1,0,5);
        outtextxy(360,80,e);
        settextstyle(1,0,8);
        delay(50);
}
for(x=280,k=0;x<450,k<str1[1] - 48;x++,k++)
{
        setcolor(15);
        outtextxy(x,0," | ");
        x+=20;
        delay(200);
}
for(x=280,k=0;x<450,k<str2[1] - 48;x++,k++)
{
        setcolor(15);
        outtextxy(x,420," | ");
        x+=20;
        delay(200);
}
for(x=280,k=0;x<450,k<str1[1] - 48;x++,k++)
{
        setcolor(14);
```

```
            outtextxy(x,0," | ");
            x+=20;
            delay(200);
}
for(x=280,k=0;x<450,k<str2[1] - 48;x++,k++)
{
            setcolor(14);
            outtextxy(x,420," | ");
            x+=20;
            delay(200);
}
outtextxy(350,320,b);
sum2 =(str1[1]- 48) + (str2[1]- 48);
if (sum2>9)
{
          r1=(sum2/ 10) +48;
          f[0]=r1;
          f[1]=NULL;
          settextstyle(1,0,5);
          setcolor(15);
          outtextxy(300,80,f);
          settextstyle(1,0,8);
          delay(50);
}
for(x=160,k=0;x>0,k<str1[0] - 48;x- - ,k++)
{
            setcolor(15);
            outtextxy(x,120," | ");
            x- =20;
            delay(200);
}
for(x=160,k=0;x>0,k<str2[0] - 48;x- - ,k++)
{
            setcolor(15);
            outtextxy(x,240," | ");
            x- =20;
            delay(200);
}
for(x=160,k=0;x>0,k<str1[0] - 48;x- - ,k++)
{
            setcolor(14);
            outtextxy(x,120," | ");
            x- =20;
            delay(200);
}
for(x=160,k=0;x>0,k<str2[0] - 48;x- - ,k++)
{
            setcolor(14);
            outtextxy(x,240," | ");
            x- =20;
            delay(200);
}
outtextxy(300,320,c);
if (sum>1000)
{
  delay(100);
  outtextxy(250,320,d);
}
settextstyle(1,0,3);
outtextxy(20,420,"Press 0 for exit or Press any other key to continue .");
ch=getche();
if (ch!='0')
```

```
    {
      closegraph();
    }
    else
    {
      cleardevice();
    }
  }while(ch!='0');
}
//******** subonedigit FUNCTION TO SUBTRACT ONE DIGIT NUMBERS **********
void subonedigit()
{
  int gd=0,gm,r,num1,num2,diff,x,y,k;
  char str1[3],str2[3],str3[3],ch;
  do
  {
    initgraph(&gd,&gm," ");
    settextstyle(1,0,8);
    setcolor(4);
    cout<<"Enter first number:- ";
    cin>>num1;
    cout<<"Enter second number:- ";
    cin>>num2;
    r=num1%10 + 48;
    str1[0]=r;
    str1[1]=NULL;
    r=num2%10 + 48;
    str2[0]=r;
    str2[1]=NULL;
    if(num1>=num2)
    {
      diff=num1 - num2;
      r=diff%10 + 48;
      str3[0]=r;
      str3[1]=NULL;
      outtextxy(200,220," - ");
      line(250,320,370,320);
      outtextxy(300,120,str1);
      delay(200);
      outtextxy(300,220,str2);
      for(x=597,k=0;x>400,k<str1[0]-48;x--,k++)
      {
            setcolor(4);
            outtextxy(x,120,"|");
            x-=20;
            delay(200);
      }
      settextstyle(1,0,4);
      for(x=575,k=0;x>400,k<str2[0]-48;x--,k++)
      {
            setcolor(14);
            outtextxy(x,150," \\ ");
            x-=20;
            delay(200);
      }
      for(x=585,k=0;x>400,k<str2[0]-48;x--,k++)
      {
            setcolor(14);
            outtextxy(x,150,"/");
            x-=20;
            delay(200);
      }
```

```
  settextstyle(1,0,8);
  delay(300);
  outtextxy(300,320,str3);
  settextstyle(1,0,3);
  outtextxy(20,420,"Press 0 for exit or Press any other key to continue.");
  ch=getche();
 }
 else
 {
  r=num1%10 + 48;
  str1[0]=r;
  str1[1]=NULL;
  r=num2%10 + 48;
  str2[0]=r;
  str2[1]=NULL;
  setcolor(4);
  outtextxy(0,220," - ");
  line(0,320,300,320);
  outtextxy(100,120,str1);
  outtextxy(100,220,str2);
  delay(300);
  setcolor(14);
  line(100,120,150,320);
  delay(200);
  line(150,120,100,320);
  r=num2%10 + 48;
  str1[0]=r;
  str1[1]=NULL;
  r=num1%10 + 48;
  str2[0]=r;
  str2[1]=NULL;
  setcolor(4);
  outtextxy(150,220," - ");
  line(0,320,350,320);
  outtextxy(250,120,str1);
  outtextxy(250,220,str2);
  setcolor(4);
  outtextxy(150,320,"-");
  setcolor(14);
  r=num1%10 + 48;
  str1[0]=r;
  str1[1]=NULL;
  r=num2%10 + 48;
  str2[0]=r;
  str2[1]=NULL;
  diff=num2 - num1;
  r=diff%10 + 48;
  str3[0]=r;
  str3[1]=NULL;
  for(x=597,k=0;x>400,k<str2[0]-48;x--,k++)
  {
          setcolor(4);
          outtextxy(x,120,"|");
          x-=20;
          delay(200);
  }
  settextstyle(1,0,4);
  for(x=575,k=0;x>400,k<str1[0]-48;x--,k++)
  {
          setcolor(14);
          outtextxy(x,150," \\ ");
          x-=20;
```

```
                delay(200);
        }
        for(x=585,k=0;x>400,k<str1[0]-48;x--,k++)
        {
                setcolor(14);
                outtextxy(x,150,"/");
                x-=20;
                delay(200);
        }
        delay(300);
        settextstyle(1,0,8);
        outtextxy(250,320,str3);
        settextstyle(1,0,3);
        outtextxy(20,420,"Press 0 for exit or Press any other key to continue.");
        ch=getche();
      }
      if(ch!='0')
      {
        closegraph();
      }
      else
      {
        cleardevice();
      }
    }while(ch!='0');
}
//******** subtwodigit FUNCTION TO SUBTRACT TWO DIGIT NUMBERS **********
void subtwodigit()
{
  int gd=0,gm,r,num1,num2,diff,x,y,k,check,check1;
  char str1[3],str2[3],str3[3],str4[3],a[3],b[3],c[3],ch;
  do
  {
   initgraph(&gd,&gm," ");
   settextstyle(1,0,8);
   setcolor(4);
   cout<<"Enter first number:-";
   cin>>num1;
   cout<<"Enter second number:-";
   cin>>num2;
   if(num1>=num2)
   {
      r=num1%10+48;
      str1[1]=r;
      r=num1/10+48;
      str1[0]=r;
      str1[2]=NULL;
      r=num2%10+48;
      str2[1]=r;
      r=num2/10+48;
      str2[0]=r;
      str2[2]=NULL;
      outtextxy(200,220," - ");
      line(200,320,450,320);
      outtextxy(300,120,str1);
      delay(100);
      outtextxy(300,220,str2);
      if(str1[1]>=str2[1])
      {
              diff=(str1[1]-48) - (str2[1]-48);
              r=diff%10+48;
              a[0]=r;
```

```
        a[1]=NULL;
        for(x=597,k=0;x>400,k<str1[1]-48;x--,k++)
        {
          setcolor(4);
          outtextxy(x,120,"|");
          x-=20;
          delay(200);
        }
        settextstyle(1,0,4);
        for(x=575,k=0;x>400,k<str2[1]-48;x--,k++)
        {
          setcolor(14);
          outtextxy(x,150," \\ ");
          x-=20;
          delay(200);
        }
        for(x=585,k=0;x>400,k<str2[1]-48;x--,k++)
        {
          setcolor(14);
          outtextxy(x,150,"/");
          x-=20;
          delay(200);
        }
        delay(300);
        settextstyle(1,0,8);
        outtextxy(350,320,a);
}
else
{
        diff=(str1[1]-48+10) - (str2[1]-48);
        check=4;
        setcolor(15);
        delay(350);
        outtextxy(350,120,"/");
        settextstyle(1,0,4);
        str3[0]=49;
        str3[1]=str1[1];
        str3[2]=NULL;
        delay(500);
        outtextxy(350,80,str3);
        settextstyle(1,0,8);
        r=diff%10 + 48;
        a[0]=r;
        a[1]=NULL;
        for(x=597,k=0;x>400,k<str1[1]-48+10;x--,k++)
        {
          setcolor(4);
          outtextxy(x,120,"|");
          x-=20;
          delay(200);
        }
        settextstyle(1,0,4);
        for(x=575,k=0;x>400,k<str2[1]-48;x--,k++)
        {
          setcolor(14);
          outtextxy(x,150," \\ ");
          x-=20;
          delay(200);
        }
        for(x=585,k=0;x>400,k<str2[1]-48;x--,k++)
        {
          setcolor(14);
```

```
            outtextxy(x,150,"/");
            x-=20;
            delay(200);
          }
          delay(400);
          settextstyle(1,0,8);
          outtextxy(350,320,a);
}
if(str1[0]>=str2[0])
{
        if(check==4)
        {
            diff=(str1[0]-48-1) - (str2[0]-48);
            setcolor(15);
            delay(300);
            outtextxy(300,120,"/");
            settextstyle(1,0,4);
            str4[0]=str1[0]-1;
            str4[1]=NULL;
            delay(500);
            outtextxy(300,80,str4);
            settextstyle(1,0,8);
            r=diff%10+48;
            b[0]=r;
            b[1]=NULL;
            for(x=177,k=0;x>0,k<str4[0]-48;x--,k++)
            {
              setcolor(4);
              outtextxy(x,120,"|");
              x-=20;
              delay(200);
            }
            settextstyle(1,0,4);
            for(x=155,k=0;x>0,k<str2[0]-48;x--,k++)
            {
              setcolor(14);
              outtextxy(x,150,"\\");
              x-=20;
              delay(200);
            }
            for(x=165,k=0;x>0,k<str2[0]-48;x--,k++)
            {
              setcolor(14);
              outtextxy(x,150,"/");
              x-=20;
              delay(200);
            }
            delay(400);
            settextstyle(1,0,8);
            outtextxy(300,320,b);
        }
        else
        {
            diff=(str1[0]-48) - (str2[0]-48);

            r=diff%10+48;
            b[0]=r;
            b[1]=NULL;
            for(x=177,k=0;x>0,k<str1[0]-48;x--,k++)
            {
              setcolor(4);
              outtextxy(x,120,"|");
```

```
            x-=20;
            delay(200);
          }
          settextstyle(1,0,4);
          for(x=155,k=0;x>0,k<str2[0]-48;x--,k++)
          {
            setcolor(14);
            outtextxy(x,150," \\ ");
            x-=20;
            delay(200);
          }
          for(x=165,k=0;x>0,k<str2[0]-48;x--,k++)
          {
            setcolor(14);
            outtextxy(x,150,"/");
            x-=20;
            delay(200);
          }
          delay(400);
          settextstyle(1,0,8);
          outtextxy(300,320,b);
        }
  }
  settextstyle(1,0,3);
  outtextxy(20,420,"Press 0 for exit or Press any other key to continue.");
  ch=getche();
}
else
{
  setcolor(4);
  r=num1%10 + 48;
  str1[1]=r;
  r=num1/10 + 48;
  str1[0]=r;
  str1[2]=NULL;
  r=num2%10 + 48;
  str2[1]=r;
  r=num2/10 + 48;
  str2[0]=r;
  str2[2]=NULL;
  outtextxy(100,220," - ");
  line(100,320,300,320);
  outtextxy(200,120,str1);
  delay(200);
  outtextxy(200,220,str2);
  delay(200);
  setcolor(14);
  line(200,120,300,320);
  delay(200);
  line(300,120,200,320);
  setcolor(4);
  r=num2%10 + 48;
  str1[1]=r;
  r=num2/10 + 48;
  str1[0]=r;
  str1[2]=NULL;
  r=num1%10 + 48;
  str2[1]=r;
  r=num1/10 + 48;
  str2[0]=r;
  str2[2]=NULL;
  setcolor(5);
```

```
line(300,320,500,320);
delay(200);
outtextxy(300,120,str1);
delay(200);
outtextxy(300,220,str2);
delay(200);
setcolor(14);
outtextxy(200,320,"- ");
r=num1%10 + 48;
str1[1]=r;
r=num1/10 + 48;
str1[0]=r;
str1[2]=NULL;
r=num2%10 + 48;
str2[1]=r;
r=num2/10 + 48;
str2[0]=r;
str2[2]=NULL;
if (str1[1]>str2[1])
{
        diff=(str2[1]+10- 48) -  (str1[1]- 48);
        check=4;
        setcolor(15);
        delay(300);
        outtextxy(350,120,"/");
        settextstyle(1,0,4);
        str3[0]=49;
        str3[1]=str2[1];
        str3[2]=NULL;
        delay(400);
        outtextxy(350,80,str3);
        settextstyle(1,0,8);
        r=diff%10 + 48;
        a[0]=r;
        a[1]=NULL;
        for(x=597,k=0;x>400,k<str3[1]- 48+10;x- - ,k++)
        {
          setcolor(4);
          outtextxy(x,120,"|");
          x- =10;
          delay(200);
        }
        settextstyle(1,0,4);
        for(x=575,k=0;x>400,k<str1[1]- 48;x- - ,k++)
        {
          setcolor(14);
          outtextxy(x,150," \\ ");
          x- =10;
          delay(200);
        }
        delay(400);
        settextstyle(1,0,8);
        outtextxy(350,320,a);
}
else
{
        diff=(str2[1]- 48) -  (str1[1]- 48);
        r=diff%10 + 48;
        a[0]=r;
        a[1]=NULL;
        for(x=597,k=0;x>400,k<str2[1]- 48;x- - ,k++)
        {
```

```
            setcolor(4);
            outtextxy(x,120,"|");
            x-=10;
            delay(200);
          }
          settextstyle(1,0,4);
          for(x=575,k=0;x>400,k<str1[1]-48;x--,k++)
          {
            setcolor(14);
            outtextxy(x,150," \\ ");
            x-=10;
            delay(200);
          }
          delay(400);
          settextstyle(1,0,8);
          outtextxy(350,320,a);
    }
    if(check==4)
    {
          diff=(str2[0]-48-1) - (str1[0]-48);

          setcolor(15);
          delay(300);
          outtextxy(300,120,"/");
          settextstyle(1,0,4);
          str4[0]=str2[0]-1;
          str4[1]=NULL;
          delay(400);
          outtextxy(310,80,str4);
          settextstyle(1,0,8);
          r=diff%10+48;
          b[0]=r;
          b[1]=NULL;

          for(x=107,k=0;x>0,k<str2[0]-48-1;x--,k++)
          {
            setcolor(4);
            outtextxy(x,120,"|");
            x-=10;
            delay(200);
          }
          settextstyle(1,0,4);
          for(x=85,k=0;x>0,k<str1[0]-48;x--,k++)
          {
            setcolor(14);
            outtextxy(x,150," \\ ");
            x-=10;
            delay(200);
          }
          delay(400);
          settextstyle(1,0,8);
          outtextxy(300,320,b);
    }
    else
    {
          diff=(str2[0]-48) - (str1[0]-48);
          r=diff%10+48;
          b[0]=r;
          b[1]=NULL;
          for(x=107,k=0;x>0,k<str2[0]-48;x--,k++)
          {
            setcolor(4);
```

```
            outtextxy(x,120,"|");
            x-=10;
            delay(200);
           }
           settextstyle(1,0,4);
           for(x=85,k=0;x>0,k<str1[0]-48;x--,k++)
           {
            setcolor(14);
            outtextxy(x,150," \\ ");
            x-=10;
            delay(200);
           }
           delay(500);
           settextstyle(1,0,8);
           outtextxy(300,320,b);
      }
      settextstyle(1,0,3);
      outtextxy(20,420,"Press 0 for exit or Press any other key to continue.");
      ch=getche();
    }
    if(ch!='0')
    {
      closegraph();
    }
    else
    {
      cleardevice();
    }
  }while(ch!='0');
}
//******** subthreedigit FUNCTION TO SUBTRACT THREE DIGIT NUMBERS **********
void subthreedigit()
{
  int gd=0,gm,r,
  num1,num2,diff,x,y,k,y1,check,check1,check2;
  char str1[4],str2[4],str3[4],str4[4],str5[4],a[3],b[3],c[3],ch;
  do
  {
    initgraph(&gd,&gm," ");
    settextstyle(1,0,8);
    setcolor(4);
    cout<<"Enter first number:- ";
    cin>>num1;
    cout<<"Enter second number:- ";
    cin>>num2;
    r=num1%10 + 48;
    str1[2]=r;
    r=num1%100;
    str1[1]=r/10 +48;
    r=num1/100 + 48;
    str1[0]=r;
    str1[3]=NULL;
    r=num2%10 + 48;
    str2[2]=r;
    r=num2%100;
    str2[1]=r/10 +48;
    r=num2/100 + 48;
    str2[0]=r;
    str2[3]=NULL;
    if(num1>num2)
    {
      outtextxy(150,220," - ");
```

```
line(150,320,450,320);
delay(200);
outtextxy(250,120,str1);
delay(200);
outtextxy(250,220,str2);
setcolor(14);
if (str1[2]>=str2[2])
{
        diff=(str1[2]-48) - (str2[2]-48);
        r=diff%10 + 48;
        a[0]=r;
        a[1]=NULL;
        delay(500);
        settextstyle(1,0,8);
        outtextxy(350,320,a);
}
else
{
        diff=(str1[2]-48+10) - (str2[2]-48);
        check=4;
        setcolor(15);
        delay(500);
        outtextxy(350,120,"/");
        settextstyle(1,0,4);
        str3[0]=49;
        str3[1]=str1[2];
        str3[2]=NULL;
        delay(500);
        outtextxy(350,80,str3);
        settextstyle(1,0,8);
        r=diff%10 + 48;
        a[0]=r;
        a[1]=NULL;
        setcolor(14);
        delay(500);
        settextstyle(1,0,8);
        outtextxy(350,320,a);
}
if (str1[1]>=str2[1])
{
       if (check==4)
       {
        if ((str1[1]-1)>=(str2[1]))
        {
          diff=(str1[1]-48-1) - (str2[1]-48);
          setcolor(15);
          delay(500);
          outtextxy(300,120,"/");
          settextstyle(1,0,4);
          str4[0]=str1[1]-1;
          str4[1]=NULL;
          delay(500);
          outtextxy(300,80,str4);
          settextstyle(1,0,8);
          r=diff%10 + 48;
          b[0]=r;
          b[1]=NULL;
          setcolor(14);
          delay(500);
          settextstyle(1,0,8);
          outtextxy(300,320,b);
        }
```

```
            else
            {
              diff=(str1[1]-48-1+10) - (str2[1]-48);
              check1=5;
              setcolor(15);
              delay(500);
              outtextxy(300,120,"/");
              settextstyle(1,0,4);
              str4[0]=49;
              str4[1]=str1[1]-1;
              str4[2]=NULL;
              delay(500);
              outtextxy(300,80,str4);
              settextstyle(1,0,8);
              r=diff%10 + 48;
              b[0]=r;
              b[1]=NULL;
              setcolor(14);
              settextstyle(1,0,8);
              delay(500);
              outtextxy(300,320,b);
            }
           }
           else
           {
              diff=(str1[1]-48) - (str2[1]-48);
              r=diff%10 + 48;
              b[0]=r;
              b[1]=NULL;
              delay(500);
              settextstyle(1,0,8);
              outtextxy(300,320,b);
           }
    }
    else
    {
           if(check==4)
           {
              diff=(str1[1]-48+10-1) - (str2[1]-48);
              check1=5;
              setcolor(15);
              delay(500);
              outtextxy(300,120,"/");
              settextstyle(1,0,4);
              str4[0]=49;
              str4[1]=str1[1]-1;
              str4[2]=NULL;
              delay(500);
              outtextxy(300,80,str4);
              settextstyle(1,0,8);
              r=diff%10 + 48;
              b[0]=r;
              b[1]=NULL;
              setcolor(14);
              delay(500);
              settextstyle(1,0,8);
              outtextxy(300,320,b);
           }
           else
           {
              diff=(str1[1]-48+10) - (str2[1]-48);
              check1=5;
```

```
            setcolor(15);
            delay(500);
            outtextxy(300,120,"/");
            settextstyle(1,0,4);
            str4[0]=49;
            str4[1]=str1[1];
            str4[2]=NULL;
            delay(500);
            outtextxy(300,80,str4);
            settextstyle(1,0,8);
            r=diff%10+48;
            b[0]=r;
            b[1]=NULL;
            setcolor(14);
            settextstyle(1,0,8);
            delay(500);
            outtextxy(300,320,b);
          }
 }
 if(str1[0]>str2[0])
 {
        if(check1==5)
        {
          diff=(str1[0]-48-1) - (str2[0]-48);
          setcolor(15);
          delay(500);
          outtextxy(250,120,"/");
          settextstyle(1,0,4);
          str5[0]=str1[0]-1;
          str5[1]=NULL;
          delay(500);
          outtextxy(250,80,str5);
          settextstyle(1,0,8);
          r=diff%10+48;
          c[0]=r;
          c[1]=NULL;
          setcolor(14);
          settextstyle(1,0,8);
          delay(500);
          outtextxy(250,320,c);
        }
        else
        {
          diff=(str1[0]-48) - (str2[0]-48);
          r=diff%10+48;
          c[0]=r;
          c[1]=NULL;
          setcolor(14);
          settextstyle(1,0,8);
          delay(500);
          outtextxy(250,320,c);
        }
 }
 settextstyle(1,0,3);
 outtextxy(20,420,"Press 0 for exit or Press any other key to continue.");
 ch=getche();
}
else
{
 outtextxy(0,220," - ");
 line(0,320,300,320);
 outtextxy(100,120,str1);
```

```
outtextxy(100,220,str2);
setcolor(14);
delay(500);
line(100,120,250,320);
delay(500);
line(250,120,100,320);
setcolor(4);
delay(500);
outtextxy(300,220,"-");
line(300,320,600,320);
outtextxy(400,120,str2);
delay(500);
outtextxy(400,220,str1);
delay(500);
outtextxy(300,320,"-");
setcolor(14);
if(str1[2]>=str2[2])
{
        if(str1[2]==str2[2])
        {
          diff=(str2[2]-48) - (str1[2]-48);
          r=diff%10 + 48;
          a[0]=r;
          a[1]=NULL;
          delay(500);
          settextstyle(1,0,8);
          outtextxy(500,320,a);
        }
        else
        {
          diff=(str2[2]-48+10) - (str1[2]-48);
          check=4;
          setcolor(15);
          delay(500);
          outtextxy(500,120,"/");
          settextstyle(1,0,4);
          str3[0]=49;
          str3[1]=str2[2];
          str3[2]=NULL;
          delay(500);
          outtextxy(500,80,str3);
          settextstyle(1,0,8);
          r=diff%10 + 48;
          a[0]=r;
          a[1]=NULL;
          setcolor(14);
          settextstyle(1,0,8);
          delay(500);
          outtextxy(500,320,a);
        }
}
else
{
        diff=(str2[2]-48) - (str1[2]-48);
        r=diff%10 + 48;
        a[0]=r;
        a[1]=NULL;
        settextstyle(1,0,8);
        delay(500);
        outtextxy(500,320,a);
}
if(str1[1]>=str2[1])
```

```
{
        if (check==4)
        {
         if (str2[1]- 1==str1[1])
         {
            diff =(str2[1]- 48- 1) -  (str1[1]- 48);
            r=diff % 10 + 48;
            b[0]=r;
            b[1]=NULL;
            setcolor(14);
            delay(500);
            outtextxy(450,320,b);
         }
         else
         {
            diff =(str2[1]+10- 48- 1) -  (str1[1]- 48);
            check1=5;
            setcolor(15);
            delay(500);
            outtextxy(450,120,"/");
            settextstyle(1,0,4);
            str4[0]=49;
            str4[1]=str2[1]- 1;
            str4[2]=NULL;
            delay(500);
            outtextxy(450,80,str4);
            settextstyle(1,0,8);
            r=diff % 10 + 48;
            b[0]=r;
            b[1]=NULL;
            setcolor(14);
            delay(500);
            outtextxy(450,320,b);
          }
        }
        else
        {
          if (str2[1]==str1[1])
          {
             diff =(str2[1]- 48) -  (str1[1]- 48);
             r=diff % 10 + 48;
             b[0]=r;
             b[1]=NULL;
             setcolor(14);
             delay(500);
             outtextxy(450,320,b);
          }
          else
          {
             diff =(str2[1]+10- 48) -  (str1[1]- 48);
             check1=5;
             setcolor(15);
             delay(500);
             outtextxy(450,120,"/");
             settextstyle(1,0,4);
             str4[0]=49;
             str4[1]=str2[1];
             str4[2]=NULL;
             delay(500);
             outtextxy(450,80,str4);
             settextstyle(1,0,8);
             r=diff % 10 + 48;
```

```
                b[0]=r;
                b[1]=NULL;
                setcolor(14);
                delay(500);
                outtextxy(450,320,b);
             }
            }
    }
    else
    {
            if (check==4)
            {
             diff=(str2[1]-48-1) - (str1[1]-48);
             setcolor(15);
             delay(500);
             outtextxy(450,120,"/");
             settextstyle(1,0,4);
             str4[0]=str2[1]-1;
             str4[1]=NULL;
             delay(500);
             outtextxy(450,80,str4);
             settextstyle(1,0,8);
             r=diff%10 + 48;
             b[0]=r;
             b[1]=NULL;
             setcolor(14);
             delay(500);
             outtextxy(450,320,b);
            }
            else
            {
             diff=(str2[1]-48) - (str1[1]-48);
             r=diff%10 + 48;
             b[0]=r;
             b[1]=NULL;
             setcolor(14);
             delay(500);
             outtextxy(450,320,b);
            }
    }
    if (check1==5)
    {
            diff=(str2[0]-48-1) - (str1[0]-48);
            setcolor(15);
            delay(500);
            outtextxy(400,120,"/");
            settextstyle(1,0,4);
            str5[0]=str2[0]-1;
            str5[1]=NULL;
            delay(500);
            outtextxy(400,80,str5);
            settextstyle(1,0,8);
            r=diff%10 + 48;
            c[0]=r;
            c[1]=NULL;
            setcolor(14);
            delay(500);
            outtextxy(400,320,c);
    }
    else
    {
            diff=(str2[0]-48) - (str1[0]-48);
```

```
            r=diff%10 + 48;
            c[0]=r;
            c[1]=NULL;
            setcolor(14);
            delay(500);
            outtextxy(400,320,c);
       }
       ch=getche();
       settextstyle(1,0,3);
       outtextxy(20,420,"Press 0 for exit or Press any other key to continue.");
     }
     if(ch!='0')
     {
       closegraph();
     }
     else
     {
       cleardevice();
     }
  }while(ch!='0');
}
//******** multiplyone FUNCTION TO MULTIPLY ONE DIGIT NUMBERS **********
void multiplyone()
{
   int gd=0,gm,r,num1,num2,mul,x,y,k,y1,check1,check2,check3,check4,num3;
   int mul1,mul2,mul3,mul4,mul5,mul6,mul7,mul8,c1,c2,c3,c4;
   char str1[4],str2[4],str3[4],str4[4],str5[4],str6[4],a[3],b[3],c[3],ch;
   do
   {
     check1=0;check2=0;check3=0;check4=0;c1=0;c2=0;c3=0;
     initgraph(&gd,&gm," ");
     settextstyle(1,0,8);
     setcolor(4);
     cout<<"Enter first number:-";
     cin>>num1;
     cout<<"Enter 1-digit second number:-";
     cin>>num2;
     if(num1>=0 && num1<10)
     {
            num3=num2;
            r=num1%10 + 48;
            str1[0]=r;
            str1[1]=NULL;
            check1=1;
     }
     else if(num1>=10 && num1<100)
     {
            num3=num2;
            r=num1%10 + 48;
            str1[1]=r;
            r=num1%100;
            str1[0]=r/10 +48;
            str1[2]=NULL;
            check2=1;
     }
     else if(num1>=100 && num1<1000)
     {
            num3=num2;
            r=num1%10 + 48;
            str1[2]=r;
            r=num1%100;
            str1[1]=r/10 +48;
```

```
        r=num1/100 + 48;
        str1[0]=r;
        str1[3]=NULL;
        check3=1;
}
else if (num1>=1000)
{
        r=num1%10 + 48;
        str1[3]=r;
        r=num1%100;
        str1[2]=r/10 + 48;
        r=num1%1000;
        str1[1]=r/100 + 48;
        num3=num2;
        r=num1/1000 + 48;
        str1[0]=r;
        str1[4]=NULL;
        check4=1;
}

r=(num3 % 10) + 48;
str2[0]=r;
str2[1]=NULL;
settextstyle(1,0,8);
setcolor(4);
delay(400);
outtextxy(250,80,str1);
if (num1>=0 && num1<10)
{
        delay(400);
        outtextxy(250,160,str2);
        delay(100);
        outtextxy(150,160," x ");
        delay(200);
        line(150,250,350,250);
}
else if (num1>=10 && num1<100)
{
        delay(400);
        outtextxy(300,160,str2);
        delay(100);
        outtextxy(200,160," x ");
        delay(200);
        line(150,250,400,250);
}
else if (num1>=100 && num1<1000)
{
        delay(400);
        outtextxy(350,160,str2);
        delay(100);
        outtextxy(250,160," x ");
        delay(200);
        line(150,250,450,250);
}
else if (num1>=1000)
{
        delay(400);
        outtextxy(400,160,str2);
        delay(100);
        outtextxy(300,160," x ");
        delay(200);
        line(150,250,500,250);
```

```
}
if (check1==1)
{
        mul=num1*num3;
        setcolor(14);
        delay(200);
        line(50,60,450,60);
        delay(200);
        line(450,60,450,370);
        delay(200);
        line(450,370,50,370);
        delay(200);
        line(50,60,50,370);
        if (mul<10)
        {
          r=mul%10 + 48;
          str3[0]=r;
          str3[1]=NULL;
          delay(400);
          outtextxy(250,250,str3);
        }
        else
        {
          r=mul%10 + 48;
          str3[1]=r;
          r=mul/10 + 48;
          str3[0]=r;
          str3[2]=NULL;
          delay(400);
          outtextxy(200,250,str3);
        }
}
if (check2==1)
{
  setcolor(14);
  delay(200);
  line(50,40,500,40);
  delay(200);
  line(500,40,500,370);
  delay(200);
  line(500,370,50,370);
  delay(200);
  line(50,370,50,40);
  setcolor(4);
  mul=num1*num3;
  mul1 = (str1[1]- 48) * (str2[0]- 48);
  if (mul1>=10)
  {
          r=mul1/10 + 48;
          a[0]=r;
          a[1]=NULL;
          settextstyle(1,0,5);
          setcolor(15);
          delay(400);
          outtextxy(250,40,a);
          settextstyle(1,0,8);
          delay(50);
          c1=1;
  }
  r=mul1%10 + 48;
  str3[0]=r;
  str3[1]=NULL;
```

```
  setcolor(14);
  delay(400);
  outtextxy(300,250,str3);
  delay(200);
  mul2=(str1[0]- 48) * (str2[0]- 48);
  if (c1==1)
  {
          mul2=mul2 + a[0]- 48;
  }
  if (mul2>=10)
  {
              r=mul2% 10 + 48;
              str4[1]=r;
              r=mul2/ 10 + 48;
              str4[0]=r;
              str4[2]=NULL;
              setcolor(14);
              delay(400);
              outtextxy(200,250,str4);
              delay(200);
  }
  else
  {
              r=mul2% 10 + 48;
              str4[0]=r;
              str4[1]=NULL;
              setcolor(14);
              delay(400);
              outtextxy(250,250,str4);
              delay(200);
  }
}
if (check3==1)
{
          setcolor(14);
          delay(200);
          line(50,40,550,40);
          delay(200);
          line(550,40,550,370);
          delay(200);
          line(550,370,50,370);
          delay(200);
          line(50,370,50,40);
          setcolor(4);
          mul=num1*num3;
          mul1=(str1[2]- 48) * (str2[0]- 48);
          if (mul1>=10)
          {
            r=mul1/ 10 + 48;
            a[0]=r;
            a[1]=NULL;
            setcolor(15);
            settextstyle(1,0,5);
            delay(400);
            outtextxy(310,40,a);
            settextstyle(1,0,8);
            c1=1;
          }
          r=mul1% 10 + 48;
          str3[0]=r;
          str3[1]=NULL;
          setcolor(14);
```

```
            delay(400);
            outtextxy(350,250,str3);
            mul2=(str1[1]- 48) * (str2[0]- 48);
            if (c1==1)
            {
              mul2=mul2 + a[0]- 48;
            }
            if (mul2>=10)
            {
              r=mul2/ 10 + 48;
              b[0]=r;
              b[1]=NULL;
              setcolor(15);
              settextstyle(1,0,5);
              delay(400);
              outtextxy(260,40,b);
              settextstyle(1,0,8);
              c2=1;
            }
            r=mul2% 10 + 48;
            str4[0]=r;
            str4[1]=NULL;
            setcolor(14);
            delay(400);
            outtextxy(300,250,str4);
            mul3=(str1[0]- 48) * (str2[0]- 48);
            if (c2==1)
            {
              mul3=mul3 + b[0]- 48;
            }
            if (mul3>=10)
            {
              r=mul3% 10 + 48;
              str5[1]=r;
              r=mul3/ 10 + 48;
              str5[0]=r;
              str5[2]=NULL;
              setcolor(14);
              delay(400);
              outtextxy(200,250,str5);
            }
            else
            {
              r=mul3% 10 + 48;
              str5[0]=r;
              str5[1]=NULL;
              setcolor(14);
              delay(400);
              outtextxy(250,250,str5);
            }
      }
      if (check4==1)
      {
             setcolor(14);
             delay(200);
             line(50,40,600,40);
             delay(200);
             line(600,40,600,370);
             delay(200);
             line(600,370,50,370);
             delay(200);
             line(50,370,50,40);
```

```
setcolor(4);
mul=num1*num3;
mul1=(str1[3]- 48) * (str2[0]- 48);
if (mul1>=10)
{
   r=mul1/ 10 + 48;
   a[0]=r;
   a[1]=NULL;
   setcolor(15);
   settextstyle(1,0,5);
   delay(400);
   outtextxy(360,40,a);
   settextstyle(1,0,8);
   c1=1;
}
r=mul1% 10 + 48;
str3[0]=r;
str3[1]=NULL;
setcolor(14);
delay(400);
outtextxy(400,250,str3);
mul2=(str1[2]- 48) * (str2[0]- 48);
if (c1==1)
{
   mul2=mul2 + a[0]- 48;
}
if (mul2>=10)
{
   r=mul2/ 10 + 48;
   b[0]=r;
   b[1]=NULL;
   setcolor(15);
   settextstyle(1,0,5);
   delay(400);
   outtextxy(310,40,b);
   settextstyle(1,0,8);
   c2=1;
}
r=mul2% 10 + 48;
str4[0]=r;
str4[1]=NULL;
setcolor(14);
delay(400);
outtextxy(350,250,str4);
mul3=(str1[1]- 48) * (str2[0]- 48);
if (c2==1)
{
   mul3=mul3 + b[0]- 48;
}
if (mul3>=10)
{
   r=mul3/ 10 + 48;
   c[0]=r;
   c[1]=NULL;
   setcolor(15);
   settextstyle(1,0,5);
   delay(400);
   outtextxy(260,40,c);
   settextstyle(1,0,8);
   c3=1;
}
r=mul3% 10 + 48;
```

```
                str5[0]=r;
                str5[1]=NULL;
                setcolor(14);
                delay(400);
                outtextxy(300,250,str5);
                mul4=(str1[0]- 48) * (str2[0]- 48);
                if (c3==1)
                {
                  mul4=mul4 + c[0]- 48;
                }
                if (mul4>=10)
                {
                  r=mul4% 10 + 48;
                  str6[1]=r;
                  r=mul4/ 10 + 48;
                  str6[0]=r;
                  str6[2]=NULL;
                  setcolor(14);
                  delay(400);
                  outtextxy(200,250,str6);
                }
                else
                {
                  r=mul4% 10 + 48;
                  str6[0]=r;
                  str6[1]=NULL;
                  setcolor(14);
                  delay(400);
                  outtextxy(250,250,str6);
                }
    }
    settextstyle(1,0,2);
    setcolor(15);
    outtextxy(50,400,"Press 0 for exit or Press any other key to continue.");
    ch=getche();
    if (ch!='0')
    {
            closegraph();
    }
    else
    {
            cleardevice();
    }
  }while(ch!='0');
}
//******** multiplytwo FUNCTION TO MULTIPLY BY TWO DIGIT NUMBER **********
void multiplytwo()
{
  int gd=0,gm,r,num1,num2,mul,x,y,k,y1,check1,check2,check3,check4,num3;
  int mul1,mul2,mul3,mul4,mul5,mul6,mul7,mul8;
  int c1,c2,c3,c4,c5,c6,c7,c8,c9,c10;
  int s1,s2,s3,s4,s5;
  char
str1[4],str2[4],str3[4],str4[4],str5[4],str6[4],str7[4],str8[4],str9[4],str10[4],str11[4],str12[4],str13[4],str14[4],str15[4];
  char a[3],b[3],c[3],d[3],e[3],f[3],g[3],h[3],i[3],j[3],ch;
  do
  {
    check1=0;check2=0;check3=0;check4=0;
    c1=0;c2=0;c3=0;c4=0;c5=0;c6=0;c7=0;c8=0;
    s1=0;s2=0;s3=0;s4=0;s5=0;
    initgraph(&gd,&gm," ");
    settextstyle(1,0,8);
```

```
setcolor(4);
fflush(stdin);
cout<<"Enter first number:- ";
cin>>num1;
cout<<"Enter 2-digit second number:- ";
cin>>num2;
if (num1>=0 && num1<10)
{
        num3=num2;
        r=num1%10 + 48;
        str1[0]=r;
        str1[1]=NULL;
        check1=1;
}
else if (num1>=10 && num1<100)
{
        num3=num2;
        r=(num1%10) + 48;
        str1[1]=r;
        r=(num1/10) + 48;
        str1[0]=r;
        str1[2]=NULL;
        check2=1;
}
else if (num1>=100 && num1<1000)
{
        num3=num2;
        r=(num1%10) + 48;
        str1[2]=r;
        r=(num1%100);
        str1[1]=r/10 + 48;
        r=(num1/100) + 48;
        str1[0]=r;
        str1[3]=NULL;
        check3=1;
}
else if (num1>=1000)
{
        r=(num1%10) + 48;
        str1[3]=r;
        r=(num1%100) ;
        str1[2]=r/10 + 48;
        r=(num1%1000) ;
        str1[1]=r/100 + 48;
        num3=num2;
        r=(num1/1000) + 48;
        str1[0]=r;
        str1[4]=NULL;
        check4=1;
}
r=(num3 % 10) + 48;
str2[1]=r;
r=(num3 / 10) +48;
str2[0]=r;
str2[2]=NULL;
settextstyle(1,0,7);
setcolor(4);
delay(400);
outtextxy(250,50,str1);
if (num1>=0 && num1<10)
{
        delay(400);
```

```
        outtextxy(210,120,str2);
        delay(100);
        outtextxy(130,120," x ");
        delay(200);
        line(150,200,350,200);
        setcolor(15);
        delay(200);
        line(300,120,360,120);
        line(300,130,360,130);
        line(355,115,365,125);
        line(355,135,365,125);
        delay(200);
        outtextxy(400,50,str2);
        outtextxy(440,120,str1);
        outtextxy(400,120,"x");
        line(330,200,530,200);
}
else if (num1>=10 && num1<100)
{
        delay(400);
        outtextxy(250,110,str2);
        delay(100);
        outtextxy(170,110," x ");
        delay(200);
        line(150,180,350,180);
}
else if (num1>=100 && num1<1000)
{
        delay(400);
        outtextxy(290,110,str2);
        delay(100);
        outtextxy(210,110," x ");
        delay(200);
        line(150,180,400,180);
}
else if (num1>=1000)
{
        delay(400);
        outtextxy(330,110,str2);
        delay(100);
        outtextxy(250,110," x ");
        delay(200);
        line(150,180,450,180);
}
if (check1==1)
{
        mul=(str1[0]- 48) * (str2[1]- 48);
        setcolor(14);
        delay(200);
        line(50,30,620,30);
        delay(200);
        line(620,30,620,370);
        delay(200);
        line(620,370,50,370);
        delay(200);
        line(50,370,50,30);
        if (mul>=10)
        {
          r=mul/ 10 + 48;
          a[0]=r;
          a[1]=NULL;
          delay(400);
```

```
            settextstyle(1,0,4);
            outtextxy(400,30,a);
            settextstyle(1,0,7);
            c1=1;
          }
          r=mul%10 + 48;
          str3[0]=r;
          str3[1]=NULL;
          delay(400);
          outtextxy(440,220,str3);
          mul1=(str1[0]- 48) * (str2[0]- 48);
          if (c1==1)
          {
            mul1=mul1 + a[0]- 48;
          }
          if (mul1<10)
          {
            r=mul1%10 + 48;
            str4[0]=r;
            str4[1]=NULL;
            delay(300);
            outtextxy(400,220,str4);
          }
          else
          {
            r=mul1%10 + 48;
            str4[1]=r;
            r=mul1/10 + 48;
            str4[0]=r;
            str4[2]=NULL;
            delay(300);
            outtextxy(360,220,str4);
          }
    }
    if (check2==1)
    {
      setcolor(14);
      delay(200);
      line(50,40,500,40);
      delay(200);
      line(500,40,500,400);
      delay(200);
      line(500,400,50,400);
      delay(200);
      line(50,400,50,40);
      setcolor(4);
      mul=num1*num3;
      mul1 = (str1[1]- 48) * (str2[1]- 48);
      if (mul1>=10)
      {
            r=mul1/10 + 48;
            a[0]=r;
            a[1]=NULL;
            settextstyle(1,0,3);
            setcolor(15);
            delay(400);
            outtextxy(255,35,a);
            settextstyle(1,0,7);
            delay(50);
            c1=1;
      }
      r=mul1%10 + 48;
```

```
str3[0]=r;
str3[1]=NULL;
setcolor(14);
delay(400);
outtextxy(290,190,str3);
delay(200);
mul2=(str1[0]- 48) * (str2[1]- 48);
if (c1==1)
{
        mul2=mul2 + (a[0]- 48);
}
if (mul2>=10)
{
        r=(mul2% 10) + 48;
        str4[1]=r;
        r=(mul2/ 10) + 48;
        str4[0]=r;
        str4[2]=NULL;
        setcolor(14);
        delay(400);
        outtextxy(210,190,str4);
        delay(200);
}
else
{
        r=(mul2% 10) + 48;
        str4[0]=r;
        str4[1]=NULL;
        setcolor(14);
        delay(400);
        outtextxy(250,190,str4);
        delay(200);
}
outtextxy(290,250,"x");
delay(400);
setcolor(0);
settextstyle(1,0,3);
outtextxy(255,35,a);
setcolor(14);
settextstyle(1,0,7);
delay(400);
mul3=(str1[1]- 48) * (str2[0]- 48);
if (mul3>=10)
{
        r=mul3/ 10 + 48;
        b[0]=r;
        b[1]=NULL;
        settextstyle(1,0,4);
        setcolor(15);
        delay(400);
        outtextxy(255,30,b);
        setcolor(14);
        settextstyle(1,0,7);
        c2=1;
}
r=mul3% 10 + 48;
str5[0]=r;
str5[1]=NULL;
delay(400);
outtextxy(250,250,str5);
mul4=(str1[0]- 48) * (str2[0]- 48);
if (c2==1)
```

```
{
        mul4=mul4 + (b[0]- 48);
}
if (mul4>=10)
{
        r=(mul4% 10) + 48;
        str6[1]=r;
        r=(mul4/ 10) + 48;
        str6[0]=r;
        str6[2]=NULL;
        delay(400);
        outtextxy(170,250,str6);
}
else
{
        r=(mul4% 10) + 48;
        str6[0]=r;
        str6[1]=NULL;
        delay(400);
        outtextxy(210,250,str6);
}
setcolor(4);
delay(400);
line(150,320,350,320);
setcolor(10);
settextstyle(7,0,7);
outtextxy(290,310,str3);
if (str4[2]==NULL)
{
        s1=(str4[1]- 48) + (str5[0]- 48);
        if (s1>=10)
        {
          r=(s1/ 10) + 48;
          c[0]=r;
          c[1]=NULL;
          settextstyle(1,0,3);
          setcolor(15);
          outtextxy(215,180,c);
          settextstyle(7,0,7);
          setcolor(10);
          c3=1;
        }
        r=(s1% 10) + 48;
        str7[0]=r;
        str7[1]=NULL;
        outtextxy(250,310,str7);
        if (str6[2]==NULL)
        {
          s2=(str4[0]- 48) + (str6[1]- 48);
          if (c3==1)
          {
                s2=s2+(c[0]- 48);
          }
          cout<<s2;
          if (s2>=10)
          {
                r=(s2/ 10) + 48;
                d[0]=r;
                d[1]=NULL;
                settextstyle(1,0,3);
                setcolor(15);
                outtextxy(170,180,d);
```

```
                settextstyle(7,0,7);
                setcolor(10);
                c4=1;
            }
            r=(s2%10) + 48;
            str8[0]=r;
            str8[1]=NULL;
            outtextxy(210,310,str8);
            s3=str6[0]- 48;
            if (c4==1)
            {
                s3=s3+(d[0]- 48);
            }
            if (s3>=10)
            {
                r=(s3%10) + 48;
                str9[1]=r;
                r=(s3/10) + 48;
                str9[0]=r;
                str9[2]=NULL;
                outtextxy(130,310,str9);
            }
            else
            {
                r=(s3%10) + 48;
                str9[0]=r;
                str9[1]=NULL;
                outtextxy(170,310,str9);
            }
        }
        else
        {
            s2=(str4[0]- 48) + (str6[0]- 48);
            if (c3==1)
            {
                s2=s2+(d[0]- 48);
            }
            if (s2>=10)
            {
                r=(s2%10) + 48;
                str8[1]=r;
                r=(s2/10) + 48;
                str8[0]=r;
                str8[2]=NULL;
                outtextxy(170,310,str8);
            }
            else
            {
                r=(s2%10) + 48;
                str8[0]=r;
                str8[1]=NULL;
                outtextxy(210,310,str8);
            }
        }
}
else if (str4[1]==NULL)
{
        s1=(str4[0]- 48) + (str5[0]- 48);
        if (s1>=10)
        {
            r=s1/10 + 48;
            c[0]=r;
```

```
    c[1]=NULL;
    settextstyle(1,0,3);
    setcolor(15);
    outtextxy(215,215,c);
    settextstyle(7,0,7);
    setcolor(10);
    c3=1;
  }
  r=s1%10 + 48;
  str7[0]=r;
  str7[1]=NULL;
  outtextxy(250,310,str7);
  if (str6[2]==NULL)
  {
     s2=str6[1]- 48 ;
     if (c3==1)
     {
              s2=s2+(c[0]- 48);
     }
     if (s2>=10)
     {
              r=s2/10 + 48;
              d[0]=r;
              d[1]=NULL;
              settextstyle(1,0,3);
              setcolor(15);
              outtextxy(215,280,c);
              settextstyle(7,0,7);
              setcolor(10);
              c4=1;
     }
     r=s2%10 + 48;
     str8[0]=r;
     str8[1]=NULL;
     outtextxy(210,310,str8);
     s3=str6[0]- 48;
     if (c4==1)
     {
            s3=s3 + d[0]- 48;
     }
     if (s3>=10)
     {
            r=s3%10 +48;
            str9[1]=r;
            r=s3/10 +48;
            str9[0]=r;
            str9[2]=NULL;
            outtextxy(130,310,str9);
     }
     else
     {
            r=s3%10 +48;
            str9[0]=r;
            str9[1]=NULL;
            outtextxy(170,310,str9);
     }
  }
  else if (str6[1]==NULL)
  {
     s2=str6[0]- 48;
     if (c3==1)
     {
```

```
                s2=s2+(c[0]- 48);
            }
            settextstyle(7,0,7);
            setcolor(10);
            if (s2>=10)
            {
                r=s2% 10 +48;
                str8[1]=r;
                r=s2/ 10 +48;
                str8[0]=r;
                str8[2]=NULL;
            }
            else
            {
                r=s2% 10 + 48;
                str8[0]=r;
                str8[1]=NULL;
                outtextxy(210,310,str8);
            }
          }
  }
}
if (check3==1)
{
        setcolor(14);
        delay(200);
        line(50,40,500,40);
        delay(200);
        line(500,40,500,400);
        delay(200);
        line(500,400,50,400);
        delay(200);
        line(50,400,50,40);
        setcolor(4);
        mul=num1*num3;
        mul1=(str1[2]- 48) * (str2[1]- 48);
        if (mul1>=10)
        {
          r=mul1/ 10 + 48;
          a[0]=r;
          a[1]=NULL;
          setcolor(15);
          settextstyle(1,0,3);
          delay(400);
          outtextxy(295,35,a);
          settextstyle(1,0,7);
          c1=1;
        }
        r=mul1% 10 + 48;
        str3[0]=r;
        str3[1]=NULL;
        setcolor(14);
        delay(400);
        outtextxy(330,190,str3);
        mul2=(str1[1]- 48) * (str2[1]- 48);
        if (c1==1)
        {
          mul2=mul2 + a[0]- 48;
        }
        if (mul2>=10)
        {
          r=mul2/ 10 + 48;
```

```
    b[0]=r;
    b[1]=NULL;
    setcolor(15);
    settextstyle(1,0,3);
    delay(400);
    outtextxy(255,35,b);
    settextstyle(1,0,7);
    setcolor(14);
    c2=1;
  }
  r=mul2%10 + 48;
  str4[0]=r;
  str4[1]=NULL;
  setcolor(14);
  delay(400);
  outtextxy(290,190,str4);
  mul3=(str1[0]- 48) * (str2[1]- 48);
  if (c2==1)
  {
    mul3=mul3 + b[0]- 48;
  }
  if (mul3>=10)
  {
    r=mul3%10 + 48;
    str5[1]=r;
    r=mul3/10 + 48;
    str5[0]=r;
    str5[2]=NULL;
    setcolor(14);
    delay(400);
    outtextxy(210,190,str5);
  }
  else
  {
    r=mul3%10 + 48;
    str5[0]=r;
    str5[1]=NULL;
    setcolor(14);
    delay(400);
    outtextxy(240,190,str5);
  }
  setcolor(0);
  settextstyle(1,0,3);
  outtextxy(295,35,a);
  outtextxy(255,35,b);
  setcolor(14);
  settextstyle(1,0,7);
  outtextxy(330,250,"x");
  mul4=(str1[2]- 48) * (str2[0]- 48);
  if (mul4>=10)
  {
    r=mul4/10 + 48;
    c[0]=r;
    c[1]=NULL;
    setcolor(15);
    settextstyle(1,0,3);
    delay(200);
    outtextxy(295,35,c);
    settextstyle(1,0,7);
    setcolor(14);
    c3=1;
  }
```

```
r=mul4%10 + 48;
str6[0]=r;
str6[1]=NULL;
outtextxy(290,250,str6);
mul5=(str1[1]- 48) * (str2[0]- 48);
if (c3==1)
{
   mul5=mul5+c[0]- 48;
}
if (mul5>=10)
{
   r=mul5/10 + 48;
   d[0]=r;
   d[1]=NULL;
   setcolor(15);
   settextstyle(1,0,3);
   delay(200);
   outtextxy(255,35,d);
   settextstyle(1,0,7);
   setcolor(14);
   c4=1;
}
r=mul5%10 + 48;
str7[0]=r;
str7[1]=NULL;
outtextxy(250,250,str7);
mul6=(str1[0]- 48) * (str2[0]- 48);
if (c4==1)
{
   mul6=mul6+d[0]- 48;
}
if (mul6>=10)
{
   r=mul6%10 + 48;
   str8[1]=r;
   r=mul6/10 + 48;
   str8[0]=r;
   str8[2]=NULL;
   outtextxy(170,250,str8);
}
else
{
   r=mul6%10 + 48;
   str8[0]=r;
   str8[1]=NULL;
   outtextxy(210,250,str8);
}
delay(400);
line(150,320,400,320);
setcolor(10);
settextstyle(7,0,7);
outtextxy(330,310,str3);
s1=(str4[0]- 48) + (str6[0]- 48);
if (s1>=10)
{
   r=s1/10 + 48;
   e[0]=r;
   e[1]=NULL;
   settextstyle(1,0,3);
   setcolor(15);
   outtextxy(255,180,e);
   settextstyle(7,0,7);
```

```
    setcolor(10);
    c5=1;
}
r=s1%10 + 48;
str9[0]=r;
str9[1]=NULL;
outtextxy(290,310,str9);
if (str5[2]==NULL)
{
    s2=(str5[1]- 48) + (str7[0]- 48);
    if (c5==1)
    {
            s2=s2+e[0]- 48;
    }
    if (s2>=10)
    {
            r=s2/10 + 48;
            f[0]=r;
            f[1]=NULL;
            settextstyle(1,0,3);
            setcolor(15);
            delay(200);
            outtextxy(215,180,f);
            settextstyle(7,0,7);
            setcolor(10);
            c6=1;
    }
    r=s2%10 + 48;
    str10[0]=r;
    str10[1]=NULL;
    outtextxy(250,310,str10);
    if (str8[2]==NULL)
    {
            s3=(str5[0]- 48) + (str8[1]- 48);
            if (c6==1)
            {
               s3=s3+f[0]- 48;
            }
            if (s3>=10)
            {
               r=s3/10 + 48;
               g[0]=r;
               g[1]=NULL;
               setcolor(15);
               settextstyle(1,0,3);
               delay(200);
               outtextxy(175,180,g);
               setcolor(10);
               settextstyle(7,0,7);
               c7=1;
            }
            r=s3%10 + 48;
            str11[0]=r;
            str11[1]=NULL;
            outtextxy(210,310,str11);
            s4=str8[0]- 48;
            if (c7==1)
            {
               s4=s4+g[0]- 48;
            }
            if (s4>=10)
            {
```

```
                r=s4%10 + 48;
                str12[1]=r;
                r=s4/10 + 48;
                str12[0]=r;
                str12[2]=NULL;
                outtextxy(130,310,str12);
            }
            else
            {
                r=s4%10 + 48;
                str12[0]=r;
                str12[1]=NULL;
                outtextxy(170,310,str12);
            }
        }
        else
        {
            s3=(str5[0]- 48) + (str8[0]- 48);
            if (c6==1)
            {
                s3=s3+f[0]- 48;
            }
            if (s3>=10)
            {
                r=s3%10 + 48;
                str11[1]=r;
                r=s3/10 + 48;
                str11[0]=r;
                str11[2]=NULL;
                outtextxy(170,310,str11);
            }
            else
            {
                r=s3%10 + 48;
                str11[0]=r;
                str11[1]=NULL;
                outtextxy(210,310,str11);
            }
        }
    }
    else if (str5[1]==NULL)
    {
        s2=(str5[0]- 48) + (str7[0]- 48);
        if (c5==1)
        {
            s2=s2+e[0]- 48;
        }
        if (s2>=10)
        {
            r=s2/10 + 48;
            f[0]=r;
            f[1]=NULL;
            setcolor(15);
            settextstyle(1,0,3);
            delay(200);
            outtextxy(215,180,f);
            setcolor(10);
            settextstyle(7,0,7);
            c6=1;
        }
        r=s2%10 + 48;
        str10[0]=r;
```

```
str10[1]=NULL;
outtextxy(250,310,str10);
if (str8[2]==NULL)
{
        s3=str8[1]- 48;
        if (c6==1)
        {
          s3=s3+f[0]- 48;
        }
        if (s3>=10)
        {
          r=s3/ 10 + 48;
          g[0]=r;
          g[1]=NULL;
          setcolor(15);
          settextstyle(1,0,3);
          delay(200);
          outtextxy(175,180,g);
          setcolor(10);
          settextstyle(7,0,7);
          c7=1;
        }
        r=s3% 10 + 48;
        str11[0]=r;
        str11[1]=NULL;
        outtextxy(210,310,str11);
        s4=str8[0]- 48;
        if (c7==1)
        {
           s4=s4+g[0]- 48;
        }
        if (s4>=10)
        {
           r=s4% 10 + 48;
           str12[1]=r;
           r=s4/ 10 + 48;
           str12[0]=r;
           str12[2]=NULL;
           outtextxy(130,310,str12);
        }
        else
        {
           r=s4% 10 + 48;
           str12[0]=r;
           str12[1]=NULL;
           outtextxy(170,310,str12);
        }
}
else
{
        s3=str8[0]- 48;
        if (c6==1)
        {
           s3=s3+f[0]- 48;
        }
        if (s3>=10)
        {
           r=s3% 10 + 48;
           str11[1]=r;
           r=s3/ 10 + 48;
           str11[0]=r;
           str11[2]=NULL;
```

```
                    outtextxy(170,310,str11);
                }
                else
                {
                    r=s3%10 + 48;
                    str11[0]=r;
                    str11[1]=NULL;
                    outtextxy(210,310,str11);
                }
            }
        }
}
if (check4==1)
{
        setcolor(14);
        delay(200);
        line(50,40,550,40);
        delay(200);
        line(550,40,550,400);
        delay(200);
        line(550,400,50,400);
        delay(200);
        line(50,400,50,40);
        setcolor(4);
        mul=num1*num3;
        mul1=(str1[3]-48) * (str2[1]-48);
        if (mul1>=10)
        {
          r=mul1/10 + 48;
          a[0]=r;
          a[1]=NULL;
          setcolor(15);
          settextstyle(1,0,3);
          delay(400);
          outtextxy(335,35,a);
          settextstyle(1,0,7);
          c1=1;
        }
        r=mul1%10 + 48;
        str3[0]=r;
        str3[1]=NULL;
        setcolor(14);
        delay(400);
        outtextxy(370,190,str3);
        mul2=(str1[2]-48) * (str2[1]-48);
        if (c1==1)
        {
          mul2=mul2 + a[0]-48;
        }
        if (mul2>=10)
        {
          r=mul2/10 + 48;
          b[0]=r;
          b[1]=NULL;
          setcolor(15);
          settextstyle(1,0,3);
          delay(400);
          outtextxy(295,35,b);
          settextstyle(1,0,7);
          c2=1;
        }
        r=mul2%10 + 48;
```

```
str4[0]=r;
str4[1]=NULL;
setcolor(14);
delay(400);
outtextxy(330,190,str4);
mul3=(str1[1]- 48) * (str2[1]- 48);
if (c2==1)
{
  mul3=mul3 + b[0]- 48;
}
if (mul3>=10)
{
  r=mul3/ 10 + 48;
  c[0]=r;
  c[1]=NULL;
  setcolor(15);
  settextstyle(1,0,3);
  delay(400);
  outtextxy(255,35,c);
  settextstyle(1,0,7);
  c3=1;
}
r=mul3% 10 + 48;
str5[0]=r;
str5[1]=NULL;
setcolor(14);
delay(400);
outtextxy(290,190,str5);
mul4=(str1[0]- 48) * (str2[1]- 48);
if (c3==1)
{
  mul4=mul4 + c[0]- 48;
}
if (mul4>=10)
{
  r=mul4% 10 + 48;
  str6[1]=r;
  r=mul4/ 10 + 48;
  str6[0]=r;
  str6[2]=NULL;
  setcolor(14);
  delay(400);
  outtextxy(210,190,str6);
}
else
{
  r=mul4% 10 + 48;
  str6[0]=r;
  str6[1]=NULL;
  setcolor(14);
  delay(400);
  outtextxy(250,190,str6);
}
settextstyle(1,0,3);
setcolor(0);
outtextxy(335,35,a);
outtextxy(295,35,b);
outtextxy(255,35,c);
setcolor(14);
settextstyle(1,0,7);
outtextxy(370,250,"x");
mul5=(str1[3]- 48) * (str2[0]- 48);
```

```
if (mul5>=10)
{
  r=mul5/10 + 48;
  d[0]=r;
  d[1]=NULL;
  setcolor(15);
  settextstyle(1,0,3);
  delay(200);
  outtextxy(335,35,d);
  setcolor(14);
  settextstyle(1,0,7);
  c4=1;
}
r=mul5%10 + 48;
str7[0]=r;
str7[1]=NULL;
outtextxy(330,250,str7);
mul6=(str1[2]- 48) * (str2[0]- 48);
if (c4==1)
{
   mul6=mul6+d[0]- 48;
}
if (mul6>=10)
{
   r=mul6/10 + 48;
   e[0]=r;
   e[1]=NULL;
   setcolor(15);
   settextstyle(1,0,3);
   delay(200);
   outtextxy(295,35,e);
   setcolor(14);
   settextstyle(1,0,7);
   c5=1;
}
r=mul6%10 + 48;
str8[0]=r;
str8[1]=NULL;
outtextxy(290,250,str8);
mul7=(str1[1]- 48) * (str2[0]- 48);
if (c5==1)
{
   mul7=mul7+e[0]- 48;
}
if (mul7>=10)
{
   r=mul7/10 + 48;
   f[0]=r;
   f[1]=NULL;
   setcolor(15);
   settextstyle(1,0,3);
   delay(200);
   outtextxy(255,35,f);
   setcolor(14);
   settextstyle(1,0,7);
   c6=1;
}
r=mul7%10 +48;
str9[0]=r;
str9[1]=NULL;
outtextxy(250,250,str9);
mul8=(str1[0]- 48) * (str2[0]- 48);
```

```
if (c6==1)
{
   mul8=mul8+f [0]- 48;
}
if (mul8>=10)
{
   r=mul8% 10 + 48;
   str10[1]=r;
   r=mul8/ 10 + 48;
   str10[0]=r;
   str10[2]=NULL;
   outtextxy(170,250,str10);
}
else
{
   r=mul8% 10 + 48;
   str10[0]=r;
   str10[1]=NULL;
   outtextxy(210,250,str10);
}
setcolor(4);
delay(400);
line(150,320,450,320);
setcolor(10);
settextstyle(7,0,7);
outtextxy(370,310,str3);
s1=(str4[0]- 48) + (str7[0]- 48);
if (s1>=10)
{
   r=s1/ 10 + 48;
   g[0]=r;
   g[1]=NULL;
   setcolor(15);
   settextstyle(1,0,3);
   delay(200);
   outtextxy(295,180,g);
   setcolor(10);
   settextstyle(7,0,7);
   c7=1;
}
r=s1% 10 + 48;
str11[0]=r;
str11[1]=NULL;
outtextxy(330,310,str11);
s2=(str5[0]- 48) + (str8[0]- 48);
if (c7==1)
{
   s2=s2+g[0]- 48;
}
if (s2>=10)
{
   r=s2/ 10 + 48;
   h[0]=r;
   h[1]=NULL;
   setcolor(15);
   settextstyle(1,0,3);
   delay(200);
   outtextxy(255,180,h);
   setcolor(10);
   settextstyle(7,0,7);
   c8=1;
}
```

```
r=s2%10+48;
str12[0]=r;
str12[1]=NULL;
outtextxy(290,310,str12);
if (str6[2]==NULL)
{
   s3=(str6[1]-48) + (str9[0]-48);
   if (c8==1)
   {
          s3=s3+h[0]-48;
   }
   if (s3>=10)
   {
          r=s3/10+48;
          i[0]=r;
          i[1]=NULL;
          setcolor(15);
          settextstyle(1,0,3);
          delay(200);
          outtextxy(215,180,i);
          setcolor(10);
          settextstyle(7,0,7);
          c9=1;
   }
   r=s3%10 + 48;
   str13[0]=r;
   str13[1]=NULL;
   outtextxy(250,310,str13);
   if (str10[2]==NULL)
   {
          s4=(str6[0]-48) + (str10[1]-48);
          if (c9==1)
          {
            s4=s4+i[0]-48;
          }
          if (s4>=10)
          {
            r=s4/10 + 48;
            j[0]=r;
            j[1]=NULL;
            setcolor(15);
            settextstyle(1,0,3);
            delay(200);
            outtextxy(175,180,j);
            setcolor(10);
            settextstyle(7,0,7);
            c10=1;
          }
          r=s4%10 + 48;
          str14[0]=r;
          str14[1]=NULL;
          outtextxy(210,310,str14);
          s5=str10[0]-48;
          if (c10==1)
          {
            s5=s5+j[0]-48;
          }
          if (s5>=10)
          {
            r=s5%10 + 48;
            str15[1]=r;
            r=s5/10 + 48;
```

```
                str15[0]=r;
                str15[2]=NULL;
                outtextxy(130,310,str15);
            }
            else
            {
                r=s5%10 + 48;
                str15[0]=r;
                str15[1]=NULL;
                outtextxy(170,310,str15);
            }
        }
        else
        {
            s4=(str6[0]- 48) + (str10[0]- 48);
            if (c9==1)
            {
                s4=s4+i[0]- 48;
            }
            if (s4>=10)
            {
                r=s4%10 + 48;
                str14[1]=r;
                r=s4/10 + 48;
                str14[0]=r;
                str14[2]=NULL;
                outtextxy(170,310,str14);
            }
            else
            {
                r=s4%10 + 48;
                str14[0]=r;
                str14[1]=NULL;
                outtextxy(210,310,str14);
            }
        }
    }
    else
    {
        s3=(str6[0]- 48) + (str9[0]- 48);
        if (c8==1)
        {
            s3=s3+h[0]- 48;
        }
        if (s3>=10)
        {
            r=s3/10 + 48;
            i[0]=r;
            i[1]=NULL;
            setcolor(15);
            settextstyle(1,0,3);
            delay(200);
            outtextxy(215,180,i);
            setcolor(10);
            settextstyle(7,0,7);
            c9=1;
        }
        r=s3%10 + 48;
        str13[0]=r;
        str13[1]=NULL;
        outtextxy(250,310,str13);
        if (str10[2]==NULL)
```

```
{
        s4=str10[1]- 48;
        if (c9==1)
        {
          s4=s4+i[0]- 48;
        }
        if (s4>=10)
        {
          r=s4/ 10 + 48;
          j[0]=r;
          j[1]=NULL;
          setcolor(15);
          settextstyle(1,0,3);
          delay(200);
          outtextxy(175,180,j);
          setcolor(10);
          settextstyle(7,0,7);
          c10=1;
        }
        r=s4% 10 + 48;
        str14[0]=r;
        str14[1]=NULL;
        outtextxy(210,310,str14);
        s5=str10[0]- 48;
        if (c10==1)
        {
          s5=s5+j[0]- 48;
        }
        if (s5>=10)
        {
          r=s5% 10 + 48;
          str15[1]=r;
          r=s5/ 10 + 48;
          str15[0]=r;
          str15[2]=NULL;
          outtextxy(130,310,str15);
        }
        else
        {
          r=s5% 10 + 48;
          str15[0]=r;
          str15[1]=NULL;
          outtextxy(170,310,str15);
        }
}
else
{
        s4=str10[0]- 48;
        if (c9==1)
        {
          s4=s4+i[0]- 48;
        }
        if (s4>=10)
        {
          r=s4% 10 + 48;
          str14[1]=r;
          r=s4/ 10 + 48;
          str14[0]=r;
          str14[2]=NULL;
          outtextxy(170,310,str14);
        }
        else
```

```
                        {
                          r=s4%10 + 48;
                          str14[0]=r;
                          str14[1]=NULL;
                          outtextxy(210,310,str14);
                        }
                    }
                 }
    }
    settextstyle(1,0,2);
    setcolor(15);
    outtextxy(50,400,"Press 0 for exit or Press any other key to continue.");
    ch=getche();
    if(ch!='0')
    {
            closegraph();
    }
    else
    {
            cleardevice();
    }
  }while(ch!='0');
}
//******** divideone FUNCTION TO DIVIDE BY ONE DIGIT NUMBER **********
void divideone()
{
  int gd=0,gm,num1,num2,r,d1,d2,d3,s;
  char s1[4],s2[4],s3[4],s4[4],s5[4],q1[4],q2[4],q3[4],r1[4],r2[4],r3[4];
  char x1[4],x2[4],x3[4],ch;
  do
  {
    initgraph(&gd,&gm," ");
    cout<<"Enter divisor:-";
    cin>>num1;
    cout<<"\nEnter dividend:-";
    cin>>num2;
    r=num1%10 + 48;
    s1[0]=r;
    s1[1]=NULL;
    r=num2%10 + 48;
    s2[0]=r;
    s2[1]=NULL;
    setcolor(10);
    settextstyle(3,0,8);
    delay(200);
    outtextxy(250,80,")");
    delay(200);
    line(250,95,380,95);
    delay(200);
    outtextxy(360,80,"(");
    setcolor(15);
    delay(200);
    outtextxy(200,80,s1);
    delay(200);
    outtextxy(300,80,s2);
    if(num2<10)
    {
      if(num1<=num2)
      {
            d1=num2/num1;
            s= num2 - (num1*d1);
            if(s==0)
```

```
            {
              r=d1%10 + 48;
              q1[0]=r;
              q1[1]=NULL;
              delay(200);
              outtextxy(385,80,q1);
              delay(200);
              outtextxy(300,150,s2);
              setcolor(4);
              delay(200);
              outtextxy(230,150,"- ");
              line(260,245,360,245);
              setcolor(14);
              delay(200);
              outtextxy(300,230,"0");
            }
            else
            {
              r=d1%10 + 48;
              q1[0]=r;
              q1[1]=NULL;
              delay(200);
              outtextxy(385,80,q1);
              r=num1 * (q1[0]- 48) +48;
              x1[0]=r;
              x1[1]=NULL;
              delay(200);
              outtextxy(300,150,x1);
              setcolor(4);
              delay(200);
              outtextxy(230,150,"- ");
              line(260,245,360,245);
              r=num2- (x1[0]- 48) + 48;
              r1[0]=r;
              r1[1]=NULL;
              setcolor(14);
              delay(200);
              outtextxy(300,230,r1);
            }
     }
    }
    else
    {
     settextstyle(1,0,2);
     setcolor(15);
     delay(200);
     outtextxy(120,300,"Divident is not single digit number.");
    }
     settextstyle(1,0,2);
     setcolor(15);
     delay(200);
     outtextxy(50,400,"Press 0 for exit or Press any other key to continue .");
     ch=getche();
     if (ch!='0')
     {
              closegraph();
     }
     else
     {
              cleardevice();
     }
   }while(ch!='0');
```

```
}
//******** dividetwo FUNCTION TO DIVIDE BY TWO DIGIT NUMBER **********
void dividetwo()
{
  int gd=0,gm,num1,num2,r,d1,d2,d3,s;
  char s1[4],s2[4],s3[4],s4[4],s5[4],q1[4],q2[4],q3[4],r1[4],r2[4],r3[4];
  char x1[4],x2[4],x3[4],ch,c1[4],n1[4];
  do
  {
    initgraph(&gd,&gm," ");
    cout<<"Enter divisor:- ";
    cin>>num1;
    cout<<"\nEnter dividend:- ";
    cin>>num2;
    r=num1%10 + 48;
    s1[0]=r;
    s1[1]=NULL;
    r=num2%10 + 48;
    s2[1]=r;
    r=num2/10 + 48;
    s2[0]=r;
    s2[2]=NULL;
    setcolor(10);
    settextstyle(3,0,7);
    outtextxy(250,50,")");
    delay(200);
    line(250,65,425,65);
    delay(200);
    outtextxy(410,50,"(");
    delay(200);
    setcolor(15);
    outtextxy(200,50,s1);
    delay(200);
    outtextxy(300,50,s2);
    d1=num2/num1;
    r=d1/10 + 48;
    q1[0]=r;
    q1[1]=NULL;
    delay(200);
    outtextxy(425,50,q1);
    r=num1*(q1[0]- 48) + 48;
    x1[0]=r;
    x1[1]=NULL;
    delay(200);
    outtextxy(300,120,x1);
    setcolor(4);
    delay(200);
    outtextxy(230,120,"- ");
    line(260,200,400,200);
    r=((num2/10)- (x1[0]- 48)) + 48;
    r1[0]=r;
    r1[1]=NULL;
    delay(200);
    outtextxy(300,190,r1);
    r=num2%10 + 48;
    c1[0]=r;
    c1[1]=NULL;
    delay(200);
    outtextxy(350,190,c1);
    r=d1%10 + 48;
    q2[0]=r;
    q2[1]=NULL;
```

```
    setcolor(15);
    delay(200);
    outtextxy(475,50,q2);
    setcolor(4);
    r=((q2[0]- 48)*num1) ;
    if (r<10)
    {
       r2[0]=r + 48;
       r2[1]=NULL;
       delay(200);
       outtextxy(350,260,r2);
    }
    else
    {
       r2[0]=r / 10 + 48;
       r2[1]=r % 10 + 48;
       r2[2]=NULL;
       delay(200);
       outtextxy(300,260,r2);
    }
    delay(200);
    outtextxy(230,260,"- ");
    setcolor(14);
    line(260,340,400,340);
    r=num2- (d1*num1);
    if (r<10)
    {
       r3[0]=r % 10 + 48;
       r3[1]=NULL;
       delay(200);
       outtextxy(350,330,r3);
    }
    else
    {
       r3[0]=r / 10 + 48;
       r3[1]=r % 10 + 48;
       r3[2]=NULL;
       delay(200);
       outtextxy(300,330,r3);
    }
     settextstyle(1,0,2);
     setcolor(15);
     delay(200);
     outtextxy(50,400,"Press 0 for exit or Press any other key to continue.");
     ch=getche();
     if (ch!='0')
     {
            closegraph();
     }
     else
     {
            cleardevice();
     }
  }while(ch!='0');
}

//******** MAIN METHOD **********
void main()
{
    clrscr();
    char ch,ch1;
    int gd=0,gm;
```

```
initgraph(&gd,&gm," ");
settextstyle(10,0,4);
setcolor(4);
outtextxy(100,50,"* CALCULATOR *");
settextstyle(6,0,4);
setcolor(2);
delay(200);
outtextxy(50,150,"* A basic project which teach basic maths ");
outtextxy(70,200,"to children.");
setcolor(14);
delay(200);
outtextxy(50,250,"* Special thanks to my ideal - ");
setcolor(4);
settextstyle(10,0,3);
delay(200);
outtextxy(200,300,"MR. ASHOK BHARDWAJ");
setcolor(15);
settextstyle(6,0,4);
delay(200);
outtextxy(50,360,"* A project by - Vivek(IT)");
setcolor(3);
delay(200);
outtextxy(50,410,"* Press any key to START the Project");
delay(1500);
// getch();
cleardevice();
settextstyle(10,0,4);
setcolor(4);
outtextxy(70,50,"* Basic Controls- *");
settextstyle(6,0,4);
setcolor(2);
delay(200);
outtextxy(50,150,"* Press 0 to exit from current operation ");
outtextxy(70,200," either +,-,x,/.");
setcolor(14);
delay(200);
outtextxy(50,250,"* Press any other key to remain in same ");
outtextxy(70,300," operation.");
setcolor(4);
delay(200);
outtextxy(50,350,"* Don't press 0 until you want to exit ");
outtextxy(70,400," from that window.");
delay(1500);
cleardevice();
do
{
        settextstyle(7,0,6);
        setcolor(4);
        outtextxy(0,50,"**CG MINI PROJECT**");
        settextstyle(10,0,3);
        setcolor(7);
        outtextxy(0,150,"1. Addition(+)");
        setcolor(13);
        outtextxy(280,200,"2. Subtraction(-)");
        setcolor(14);
        outtextxy(0,250,"3. Multiplication(x)");
        setcolor(10);
        outtextxy(300,300,"4. Division(/)");
        setcolor(4);
        outtextxy(0,350,"5.Exit");
        setcolor(15);
        outtextxy(100,400,"Enter your choice:- ");
```

```
ch=getche();
cleardevice();
switch(ch)
{
    case '1':
                    do
                    {
                       settextstyle(10,0,4);
                       setcolor(4);
                       outtextxy(80,50,"** 1. ADDITION **");
                       settextstyle(6,0,4);
                       setcolor(2);
                       outtextxy(50,150,"1. Single Digit Number");
                       setcolor(13);
                       outtextxy(330,210,"2. Double Digit Number");
                       setcolor(14);
                       outtextxy(50,280,"3. Three Digit Number");
                       setcolor(15);
                       outtextxy(330,340,"4. Exit");
                       setcolor(10);
                       outtextxy(50,400,"Enter your choice:-");
                       ch1=getche();
                       cleardevice();
                       switch(ch1)
                       {
                               case '1':
                                       addonedigit();
                                       break;
                               case '2':
                                       addtwodigit();
                                       break;
                               case '3':
                                       addthreedigit();
                                       break;
                               case '4':
                                       break;
                       }

                    }while(ch1!='4');
                    break;
    case '2':
                    do
                    {
                       settextstyle(10,0,4);
                       setcolor(4);
                       outtextxy(80,50,"** 2. SUBTRACTION **");
                       settextstyle(3,0,4);
                       setcolor(2);
                       outtextxy(50,150,"1 Single Digit Number");
                       setcolor(13);
                       outtextxy(350,210,"2 Double Digit Number");
                       setcolor(14);
                       outtextxy(50,280,"3 Three Digit Number");
                       setcolor(15);
                       outtextxy(350,340,"4 Exit");
                       setcolor(10);
                       outtextxy(100,400,"Enter your choice:-");
                       ch1=getche();
                       cleardevice();
                       switch(ch1)
                       {
                               case '1':
```

```
                        subonedigit();
                        break;
                case '2':
                        subtwodigit();
                        break;
                case '3':
                        subthreedigit();
                        break;
                case '4':
                        break;
           }

        }while(ch1!='4');
        break;
case '3':
        do
        {
           settextstyle(10,0,4);
           setcolor(4);
           outtextxy(0,50,"* 3. MULTIPLICATION *");
           settextstyle(5,0,6);
           setcolor(2);
           outtextxy(50,150,"1. Single Digit Number");
           setcolor(14);
           outtextxy(50,230,"2. Double Digit Number");
           setcolor(4);
           outtextxy(50,310,"3. Exit");
           setcolor(15);
           outtextxy(50,390,"Enter your choice:-");
           ch1=getche();
           cleardevice();
           switch(ch1)
           {
                case '1':
                        multiplyone();
                        break;
                case '2':
                        multiplytwo();
                        break;
                case '3':
                        break;
           }

        }while(ch1!='3');
        break;
case '4':
        do
        {
           settextstyle(10,0,4);
           setcolor(4);
           outtextxy(0,50,"* 4. DIVISION *");
           settextstyle(8,0,5);
           setcolor(2);
           outtextxy(50,150,"1. Single Digit Number");
           setcolor(14);
           outtextxy(50,230,"2. Double Digit Number");
           setcolor(4);
           outtextxy(50,310,"3. Exit");
           setcolor(15);
           outtextxy(50,390,"Enter your choice:-");
           ch1=getche();
           cleardevice();
```

```
                        switch(ch1)
                        {
                                case '1':
                                        divideone();
                                        break;
                                case '2':
                                        dividetwo();
                                        break;
                                case '3':
                                        break;
                        }

                    }while(ch1!='3');
                    break;
            case '5':
                    settextstyle(10,0,4);
                    setcolor(4);
                    outtextxy(100,50,"* CALCULATOR *");
                    settextstyle(6,0,4);
                    setcolor(2);
                    outtextxy(50,150,"* Thanks for using this mini Calculator. ");
                    setcolor(3);
                    outtextxy(50,200,"* I wish it helps you.");
                    setcolor(14);
                    outtextxy(50,250,"* Special thanks to my ideal - ");
                    setcolor(4);
                    settextstyle(10,0,3);
                    outtextxy(200,300,"MR. ASHOK BHARDWAJ");
                    setcolor(15);
                    settextstyle(6,0,4);
                    outtextxy(50,360,"* A project by - Vivek(IT)");
                    delay(1500);
                    break;
            }

    }while(ch!='5');
    closegraph();
}
```