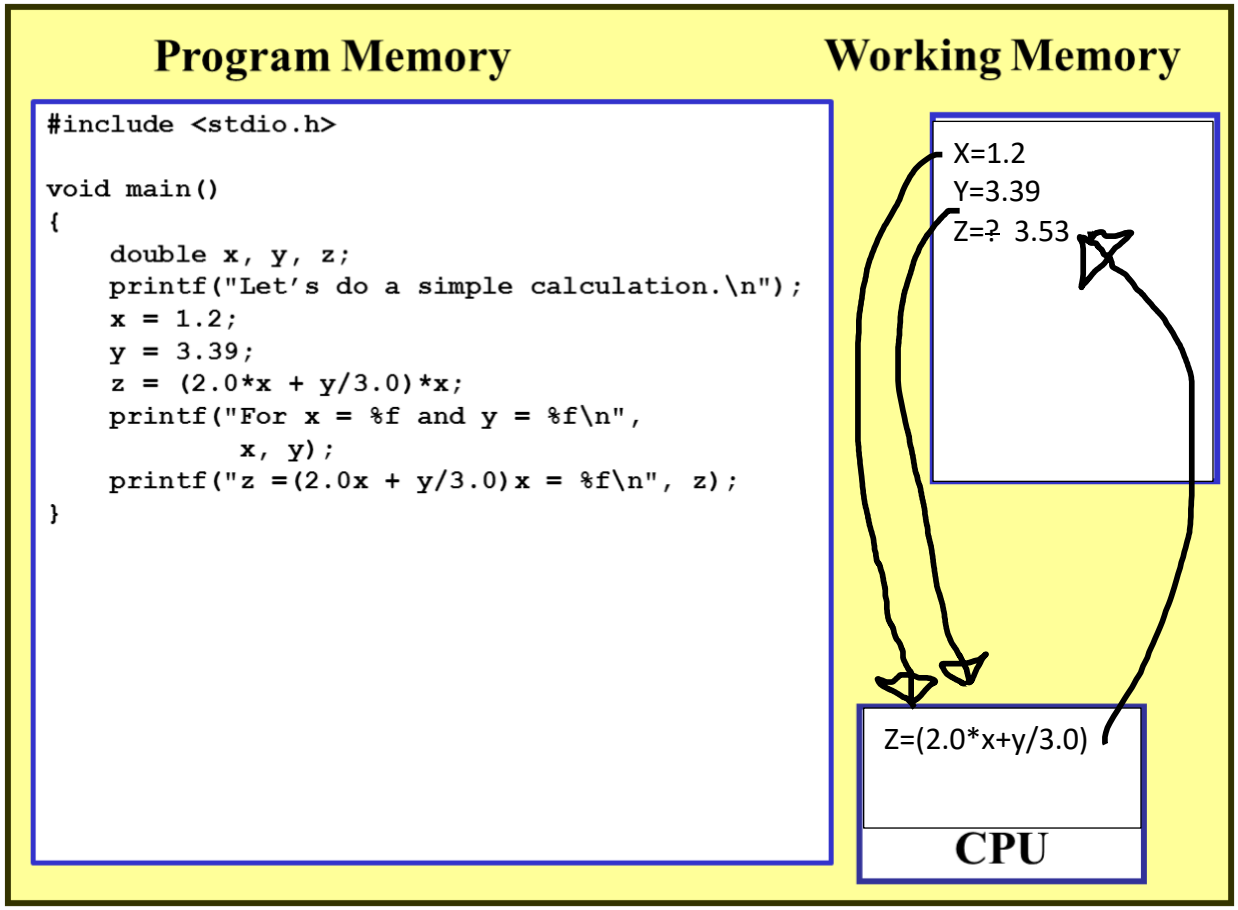
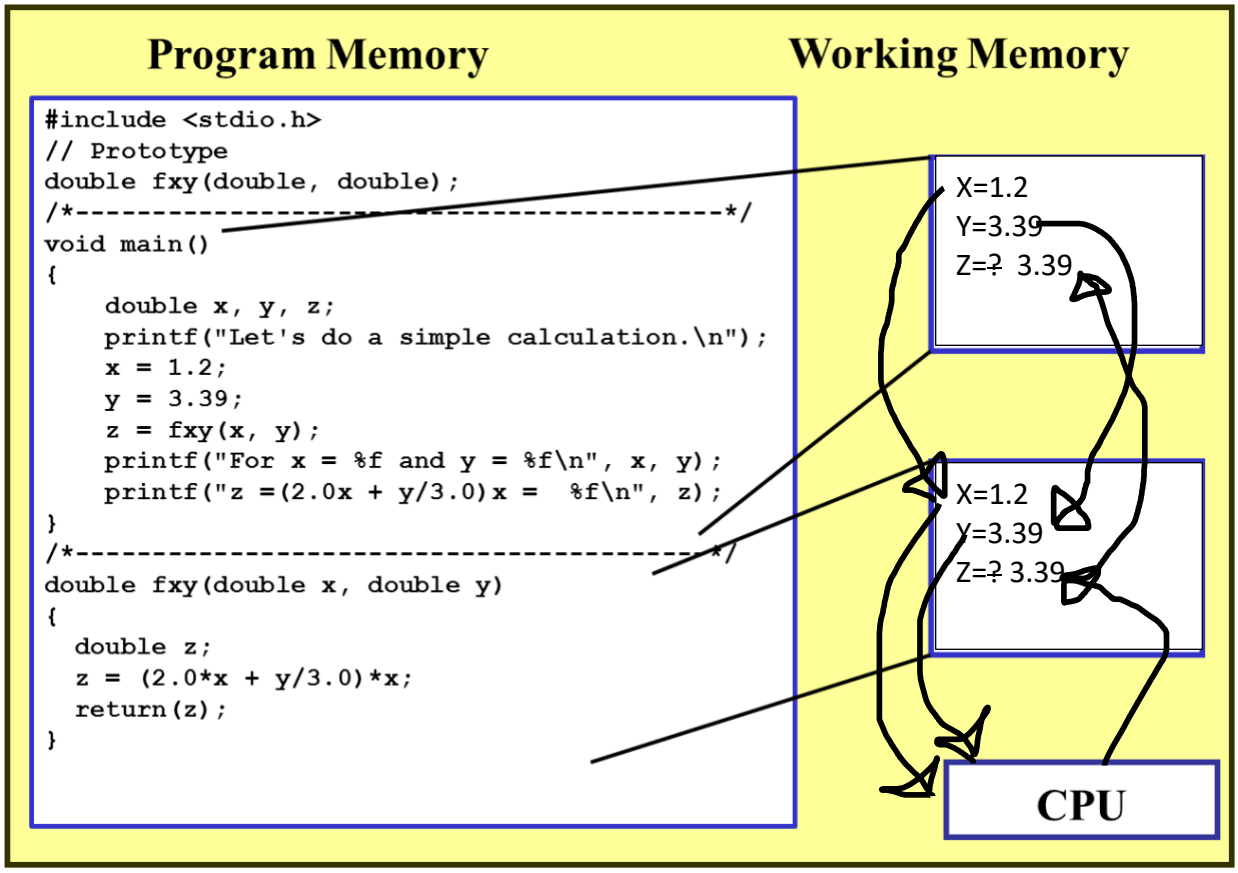
GNG1106 Assignment 1






B. /*----------

File: GNG1106template.c

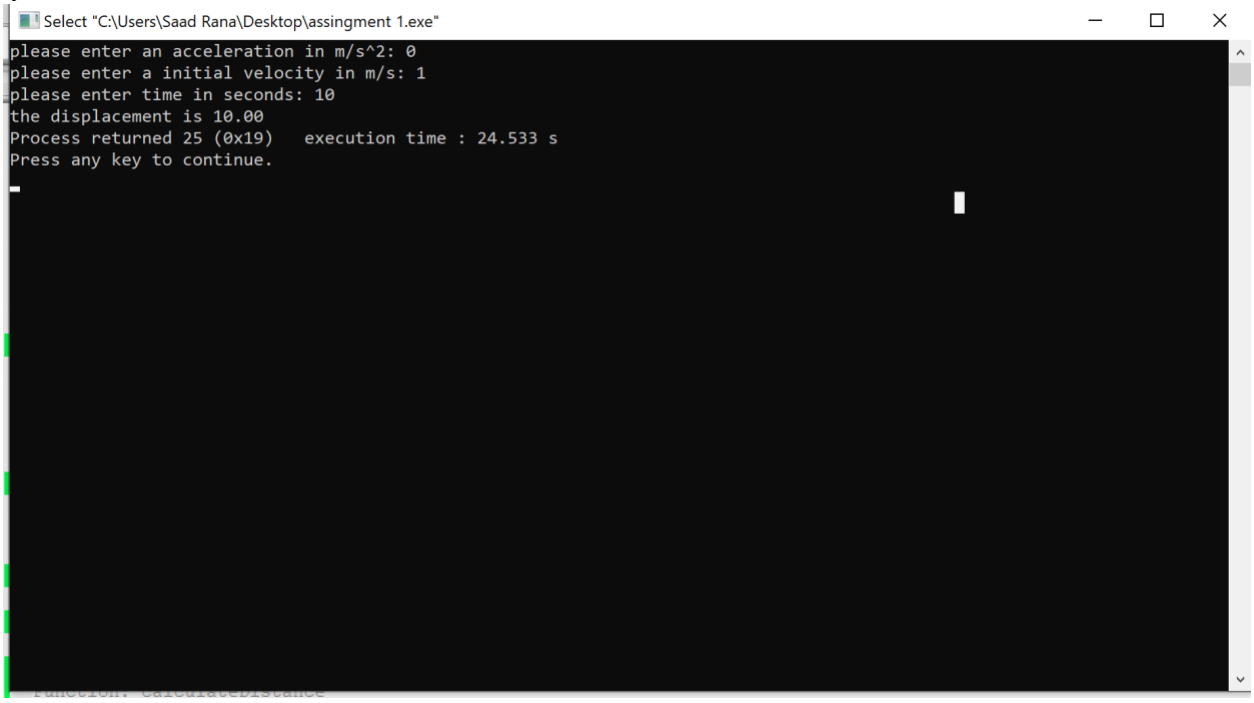
Author:Saad Rana

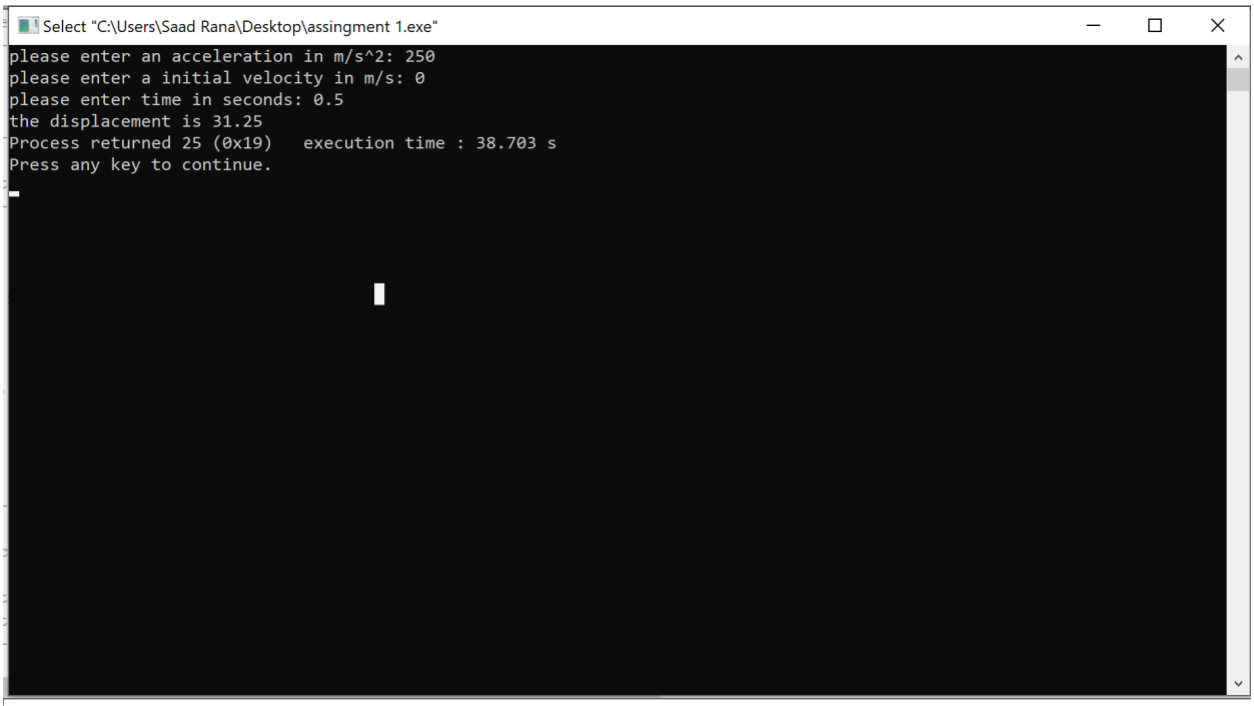
Description: the program calculates displacement when given time, acceleration, and initial velocity.

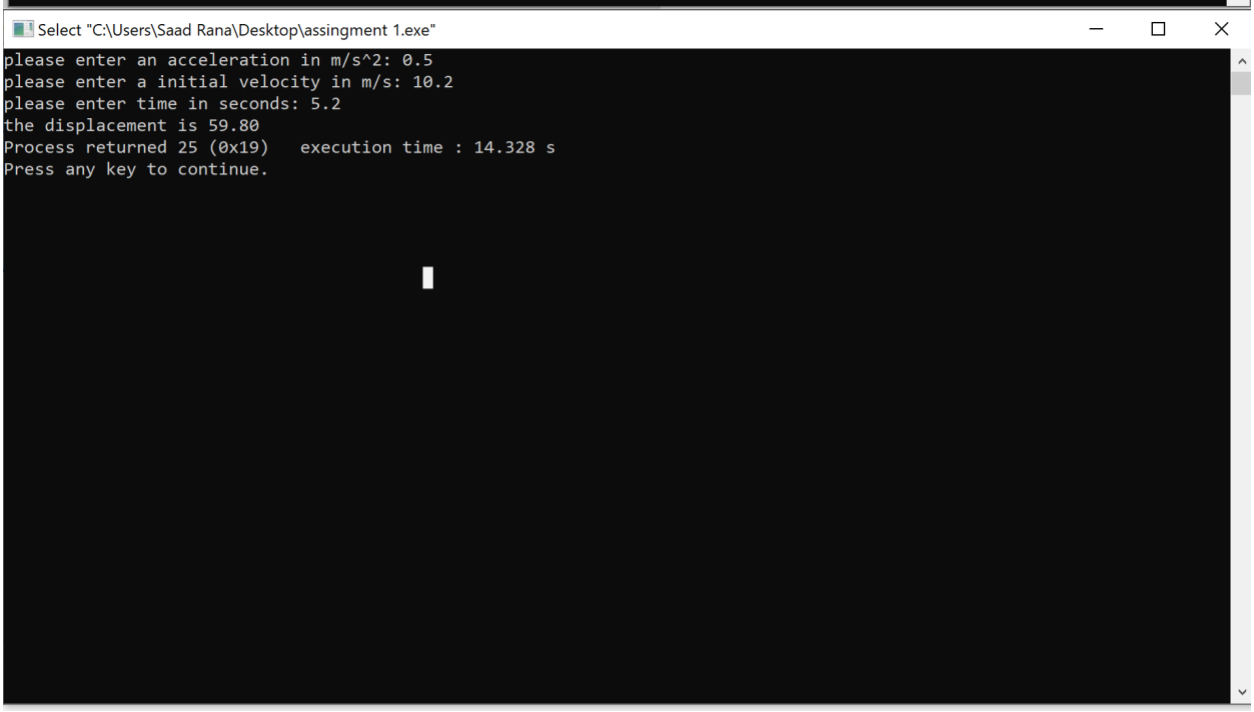
----------*/

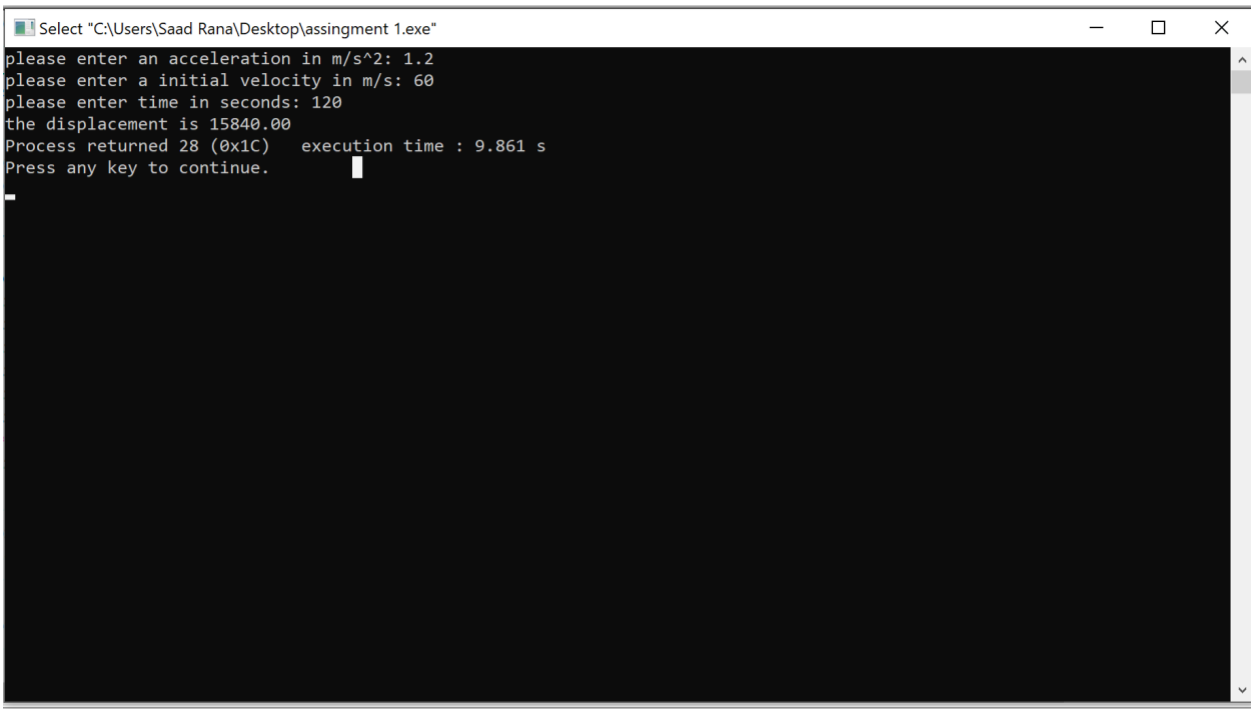
```
#include <stdio.h>
float calculateDistance(float,float,float);

/*----------
Function: main
Description: holds the variables necessary to calculate the displacement, also allows users to input values.
----------*/
void main()
{
   float A,V,T,x;
   printf("please enter an acceleration in m/s^2: ");
   scanf("%f",&A);
   printf("please enter a initial velocity in m/s: ");
```

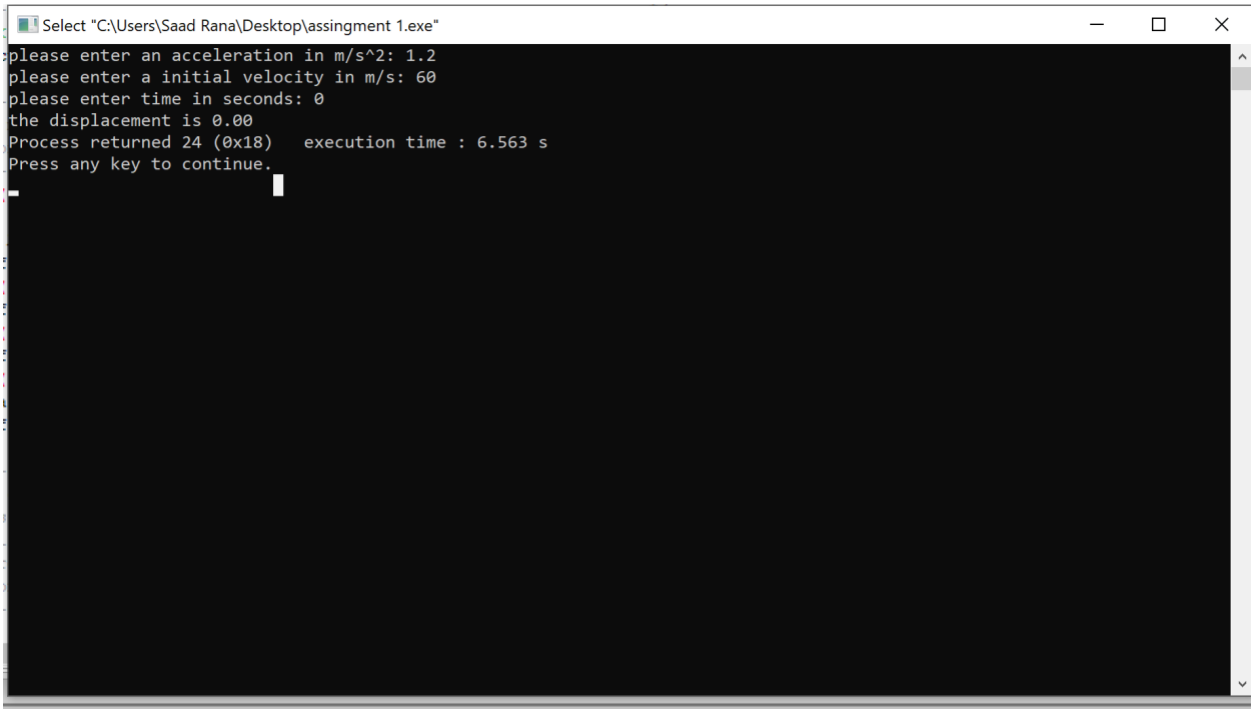
```
   scanf("%f",&V);
   printf("please enter time in seconds: ");
   scanf("%f",&T);
   x = calculateDistance(A,V,T);
   printf("the displacement is %.2f",x);
}
/*--------------------------------------------------------------------
Function: calculateDistance
Parameters: A(acceleration), V(initial velocity), T(time)
   x - displacement
Return:  returns the calculated displacement
Description: Uses the values inputted from the user to calculate and return the displacement.
--------------------------------------------------------------------*/

float calculateDistance (float A, float V, float T)
 {
   float X;
   X=(V*T) + (0.5*A*T*T);
   return(X);

 }
```




Select "C:\Users\Saad Rana\Desktop\assingment 1.exe"
please enter an acceleration in m/s^2: 250
please enter a initial velocity in m/s: 0
please enter time in seconds: 0.5
the displacement is 31.25
Process returned 25 (0x19)   execution time : 38.703 s
Press any key to continue.

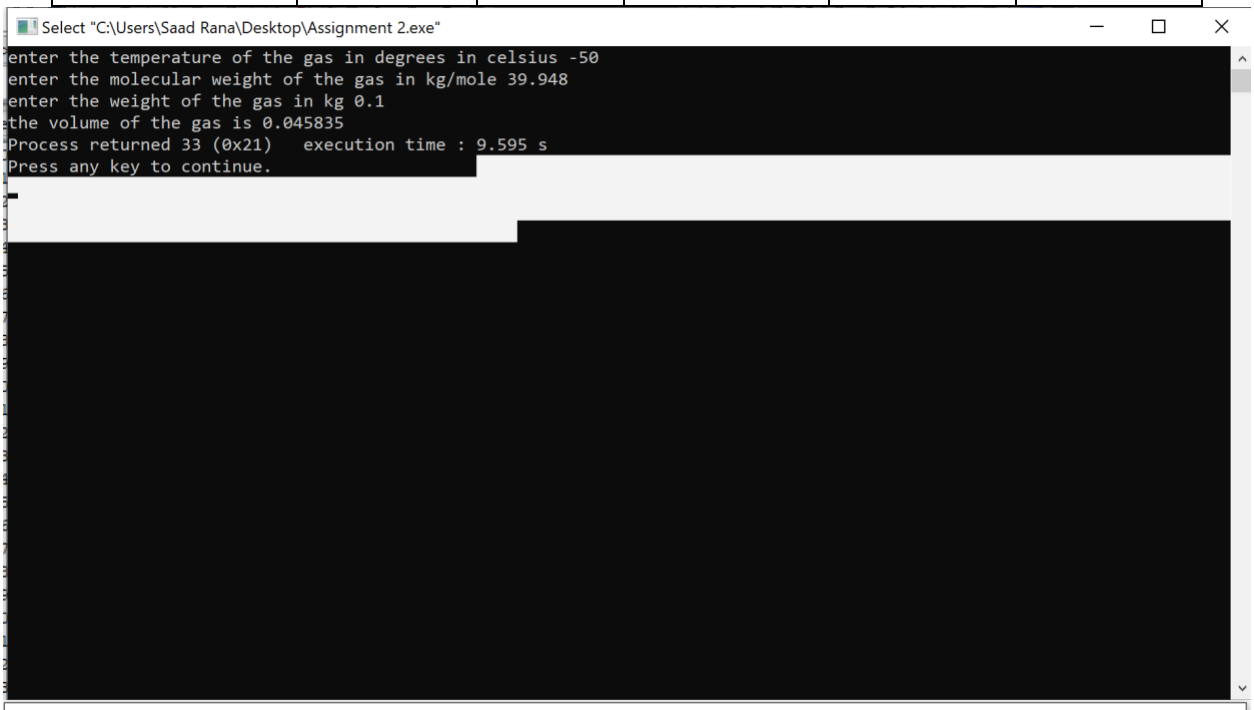

Select "C:\Users\Saad Rana\Desktop\assingment 1.exe"
please enter an acceleration in m/s^2: 0.5
please enter a initial velocity in m/s: 10.2
please enter time in seconds: 5.2
the displacement is 59.80
Process returned 25 (0x19)   execution time : 14.328 s
Press any key to continue.

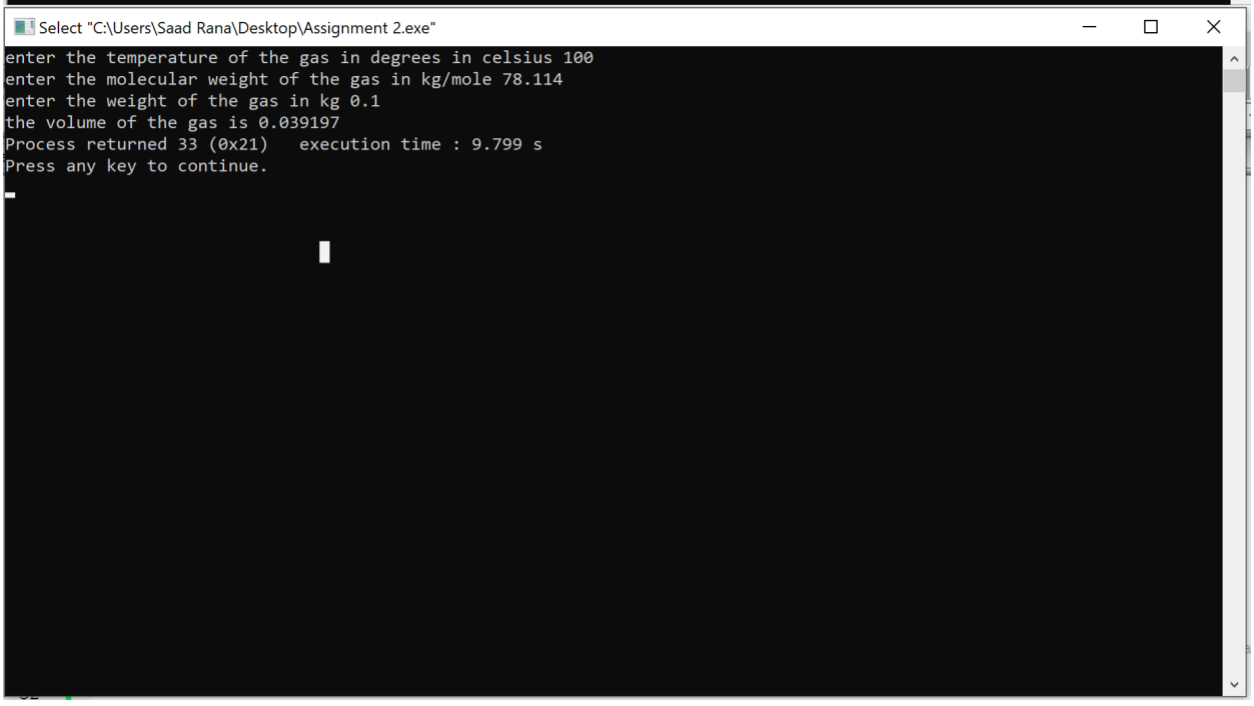

Select "C:\Users\Saad Rana\Desktop\assingment 1.exe"
please enter an acceleration in m/s^2: 1.2
please enter a initial velocity in m/s: 60
please enter time in seconds: 120
the displacement is 15840.00
Process returned 28 (0x1C)   execution time : 9.861 s
Press any key to continue.

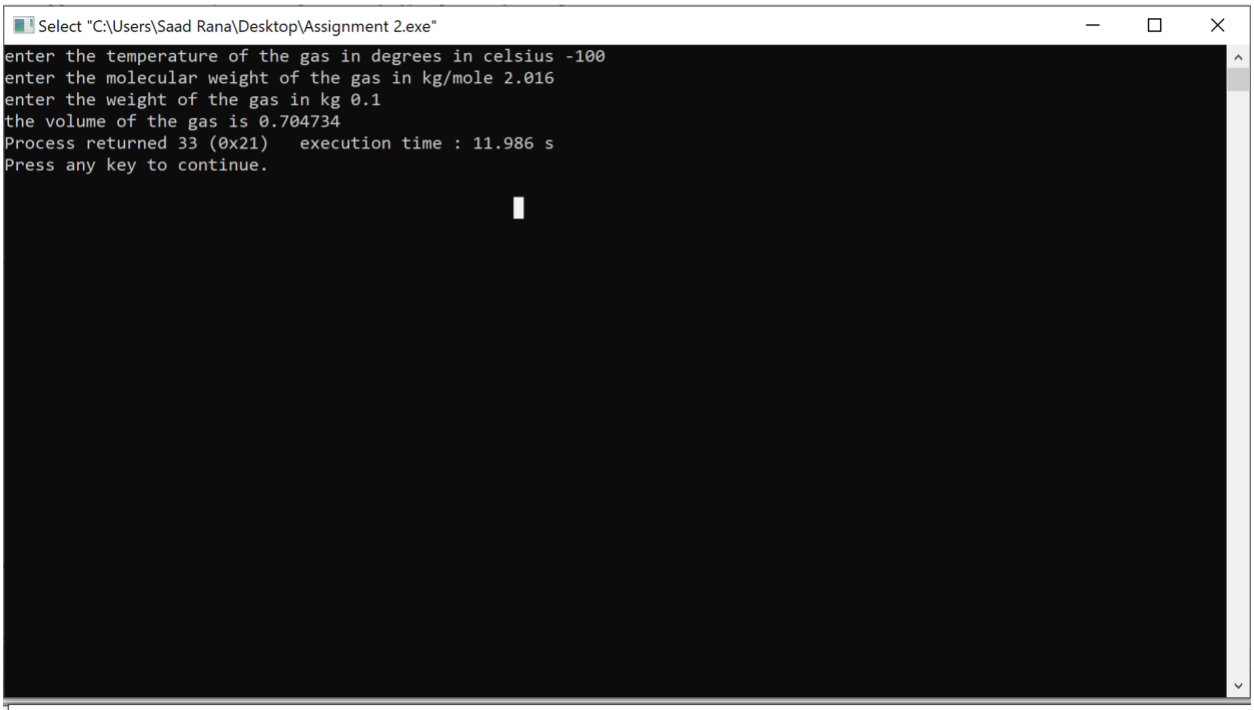

Select "C:\Users\Saad Rana\Desktop\assingment 1.exe"
please enter an acceleration in m/s^2: 1.2
please enter a initial velocity in m/s: 60
please enter time in seconds: 0
the displacement is 0.00
Process returned 24 (0x18)   execution time : 6.563 s
Press any key to continue.

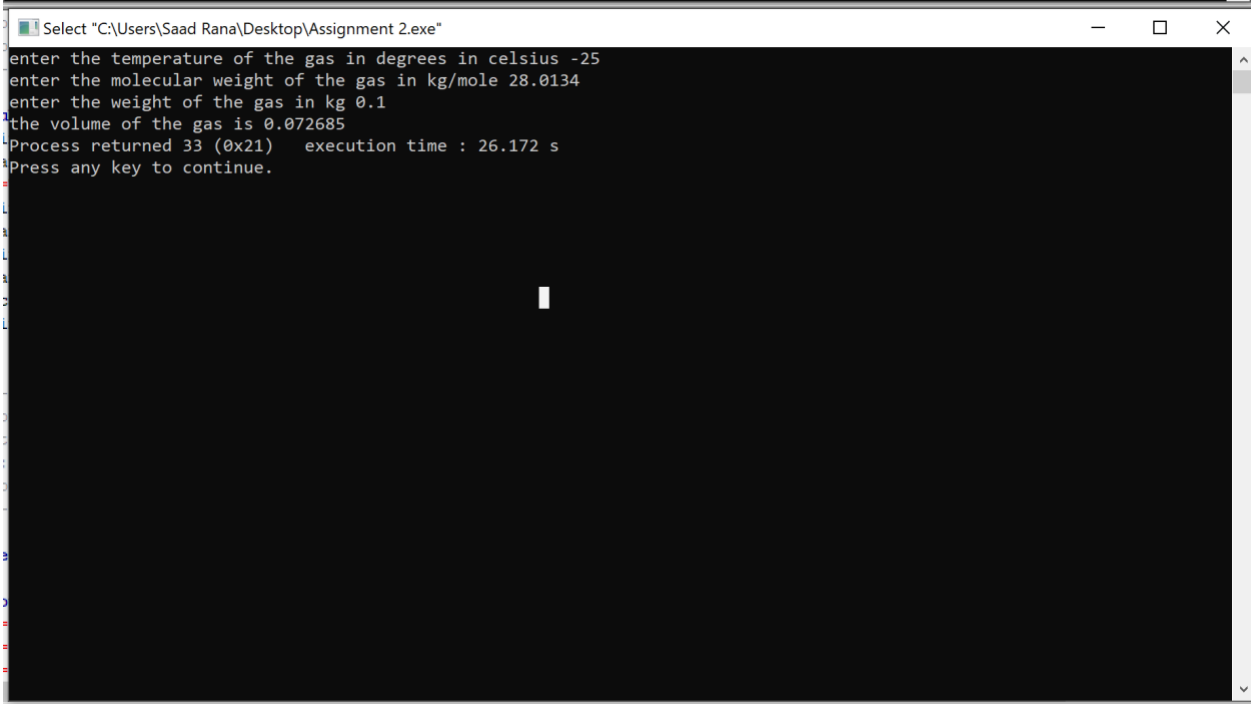
C.
```
/*-------------------------------------------------------------
File: GNG1106template.c
Author:Saad Rana
Description: The program allows users to input temperature, weight, and molecular weight of a gas to find the Volume.
-------------------------------------------------------------*/
#include <stdio.h>
double calculateVolume(double,double,double);
void main()
/*-------------------------------------------------------------
Function: main
Description: allows users to input values and displays the volume.
-------------------------------------------------------------*/
{
   double P,V,Tc,Tk,M,m,R;
   printf("enter the temperature of the gas in degrees in celsius ");
   scanf("%lf",&Tc);
   Tk=Tc+273.15;
   printf("enter the molecular weight of the gas in kg/mole ");
   scanf("%lf",&M);
   printf("enter the weight of the gas in kg ");
   scanf("%lf",&m);
   V=calculateVolume(Tk,M,m);
   printf("the volume of the gas is %f",V);

}
/*-------------------------------------------------------------
Function: calculateVolume
Parameters: T(Temperature), M( molecular weight), m(weight of gas)
Return:  V(volume of gas)
Description: the function uses the values inputted by the user to calculate and return the volume of the gas.
-------------------------------------------------------------*/

 double calculateVolume(double T, double M, double m)
 {
    double V,P,R;
    P=101.325;
    R=8.314;
    V=((m/M)*R*T)/P;
    return (V);
}
```

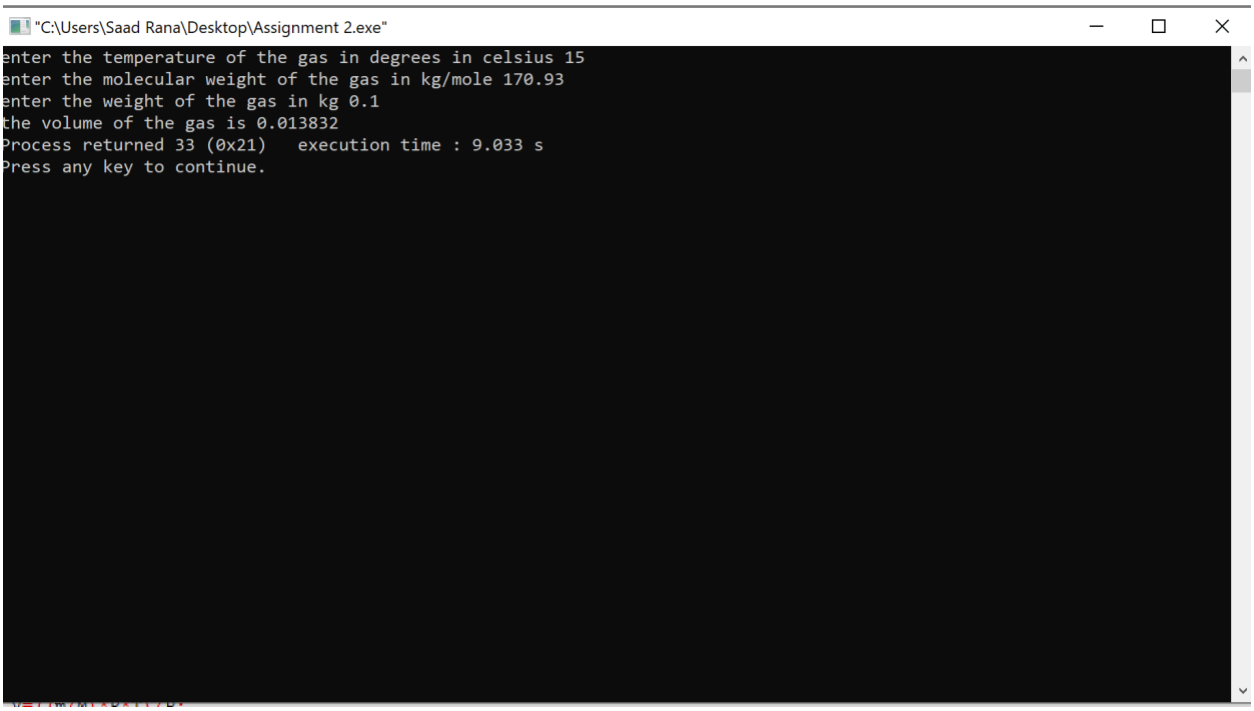
| Gas | Temperature (degrees Celsius) | Weight of gas (kg) | Molecular Weight (kg/kmole) | Boiling Point (degrees Celsius) | Volume (m^3) |
|---|---|---|---|---|---|
| Argon | -50 .0 | 0.1 | 39.948 | -185,8 | 0.045835 |
| Benzene | 100.0 | 0.1 | 78.114 | 80.4 | 0.039197 |
| Hydrogen | -100.0 | 0.1 | 2.016 | -253 | 0.704734 |
| Nitrogen | -25.0 | 0.1 | 28.0134 | -196 | 0.072685 |
| R-114 (refrigerant) | 15.0 | 0.1 | 170.93 | 3.59 | 0.013832 |




Select "C:\Users\Saad Rana\Desktop\Assignment 2.exe"
enter the temperature of the gas in degrees in celsius -100
enter the molecular weight of the gas in kg/mole 2.016
enter the weight of the gas in kg 0.1
the volume of the gas is 0.704734
Process returned 33 (0x21)   execution time : 11.986 s
Press any key to continue.


Select "C:\Users\Saad Rana\Desktop\Assignment 2.exe"
enter the temperature of the gas in degrees in celsius -25
enter the molecular weight of the gas in kg/mole 28.0134
enter the weight of the gas in kg 0.1
the volume of the gas is 0.072685
Process returned 33 (0x21)   execution time : 26.172 s
Press any key to continue.


"C:\Users\Saad Rana\Desktop\Assignment 2.exe"
enter the temperature of the gas in degrees in celsius 15
enter the molecular weight of the gas in kg/mole 170.93
enter the weight of the gas in kg 0.1
the volume of the gas is 0.013832
Process returned 33 (0x21)   execution time : 9.033 s
Press any key to continue.