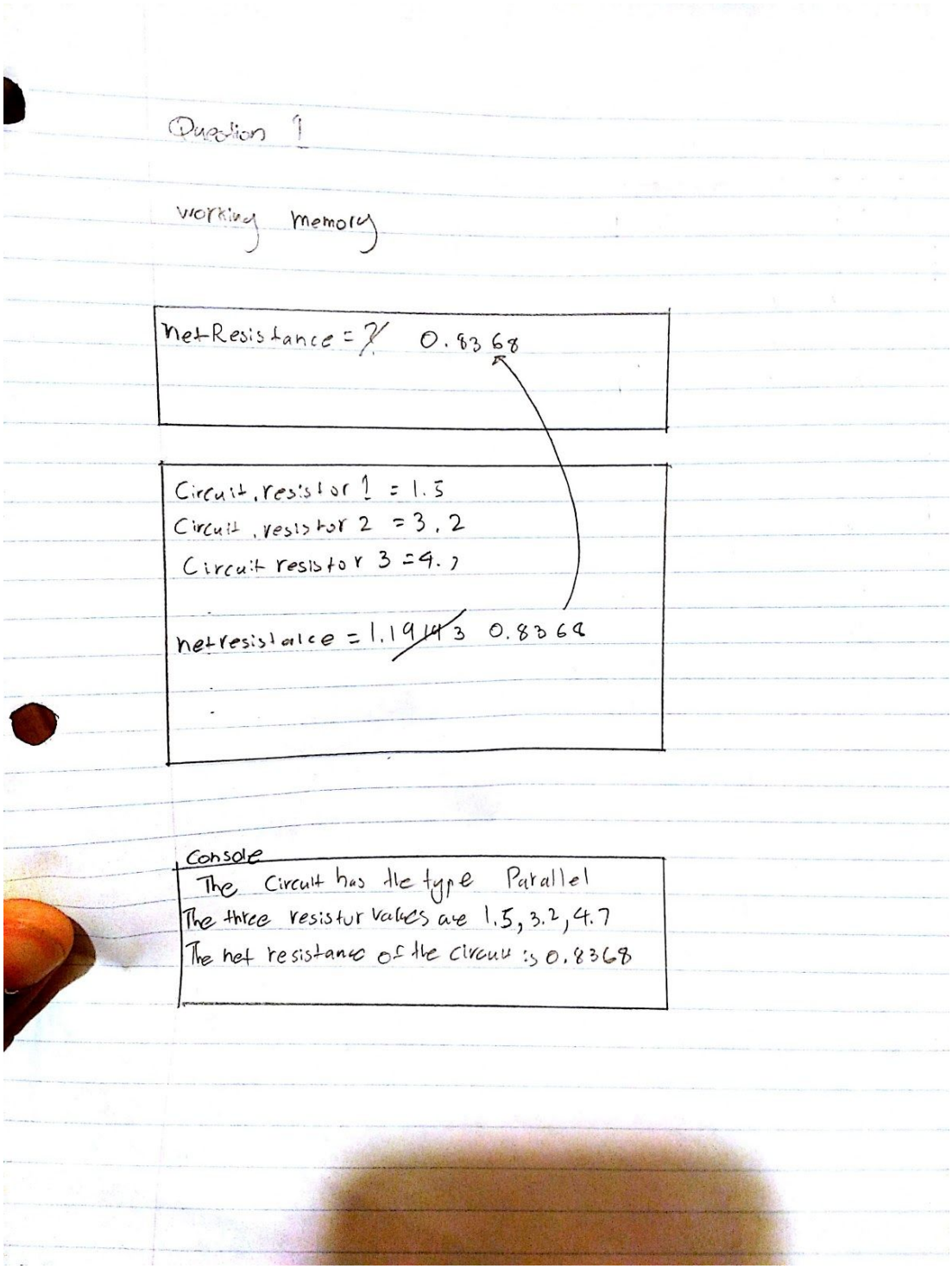
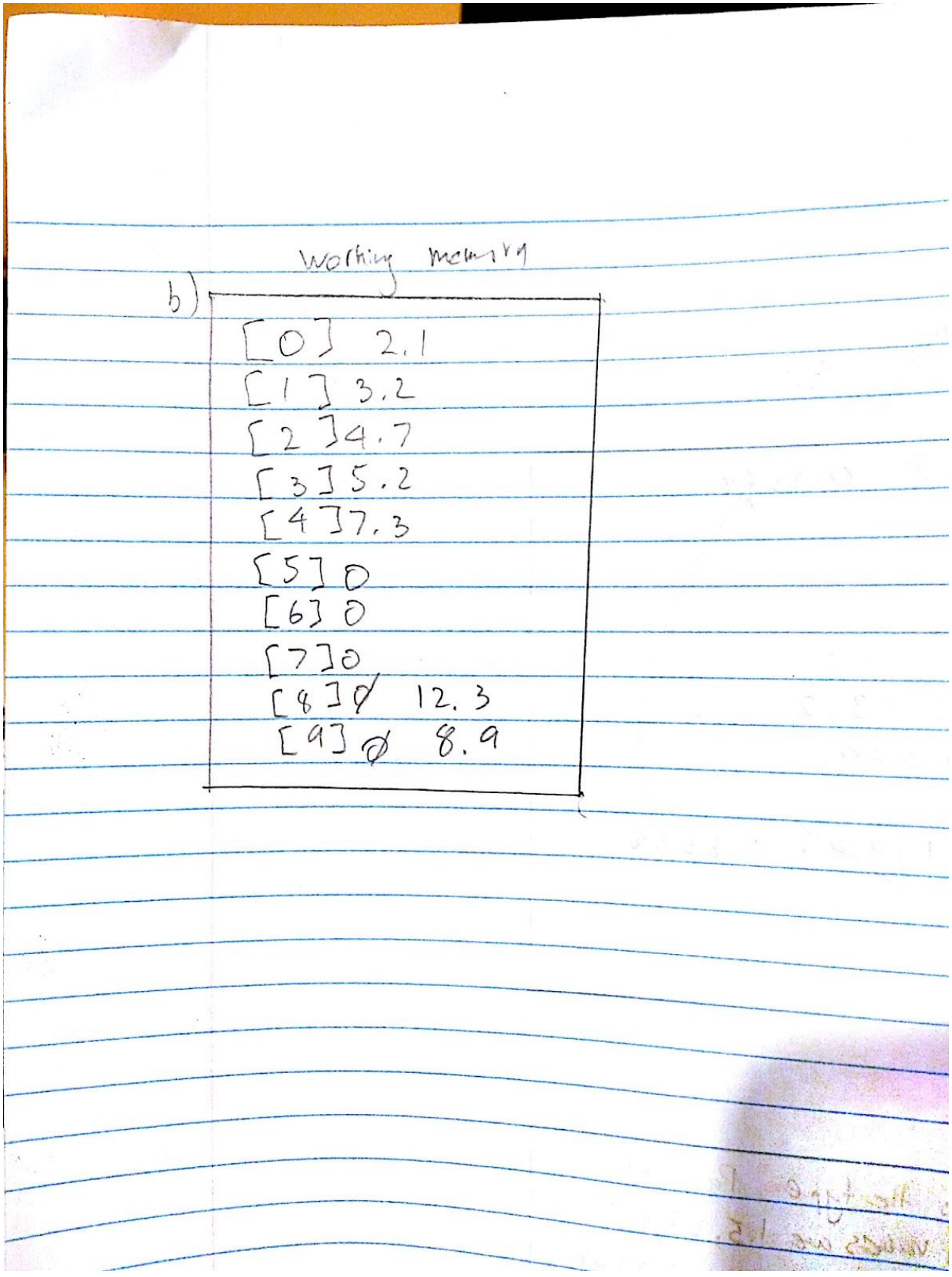
1.
A)


Question 1
working memory
netResistance = ? 0.8368
Circuit.resistor1 = 1.5
Circuit.resistor2 = 3.2
Circuit resistor 3 = 4.7
netresistance = 1.1913 0.8368
Console
The Circuit has the type Parallel
The three resistor values are 1.5, 3.2, 4.7
The net resistance of the circuit is 0.8368

b)

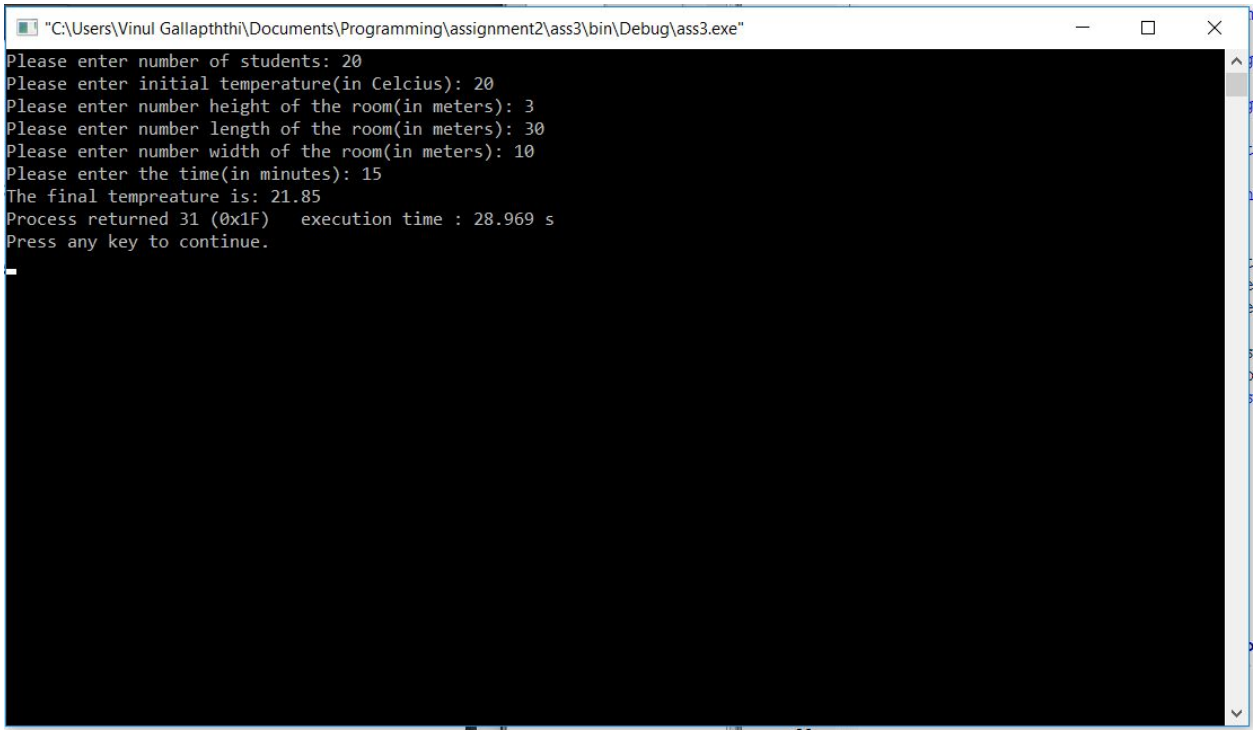


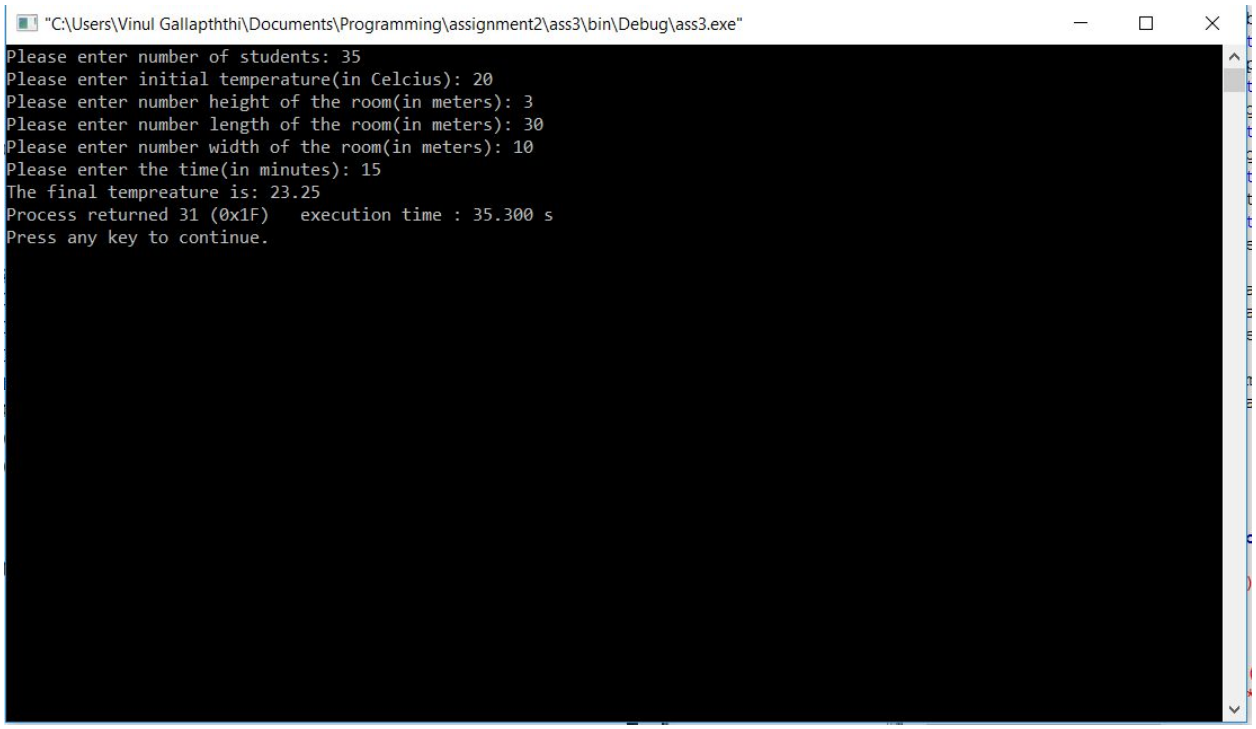
2.

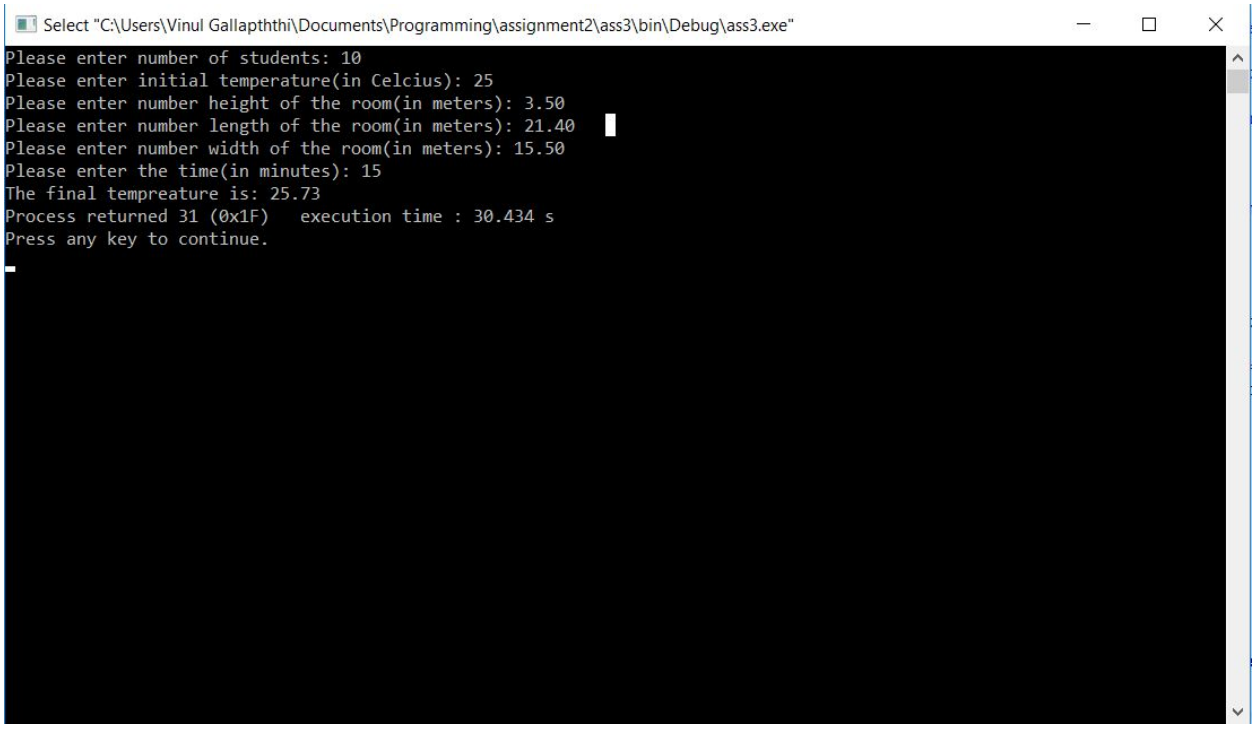
```
#include <stdio.h>
#define R 8.314
#define C 0.718
#define M 28.97
#define P 101.325

double totalVolume(double height,double length, double width, double students);
double calculateMass(double volume, double temp);


//creating the object
typedef struct{
        double heat1;
        double mass1;
        double c1;
        double temp1;
        double finalTemperature1;
}
FINALTEMP;

double finalTemp(FINALTEMP);

void main()
{
  double numberOfStudents;
  double temperature;
  double height;
  double length;
  double width;
  double time;
  double finalVolume;
  double heat;
  double mass;

  printf("Please enter number of students: ");
  scanf("%lf", &numberOfStudents);
  printf("Please enter initial temperature(in Celcius): ");
  scanf("%lf", &temperature);
  printf("Please enter number height of the room(in meters): ");
  scanf("%lf", &height);
```

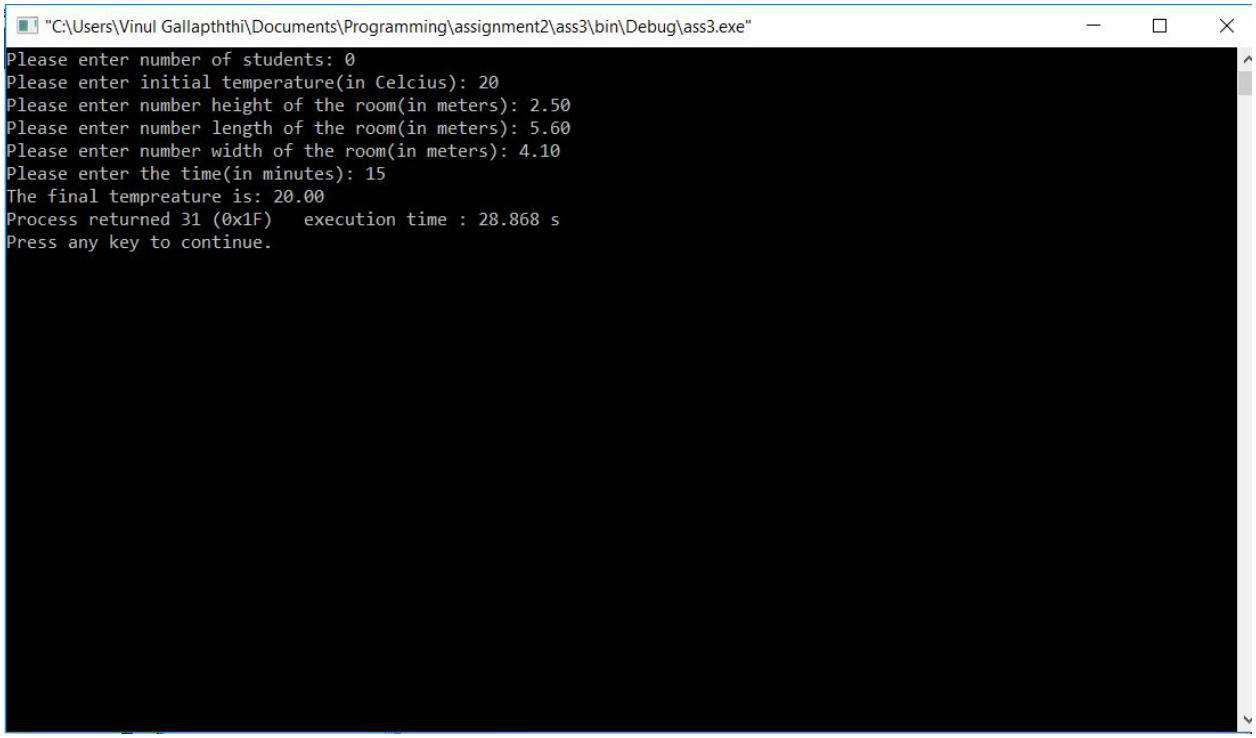
```
  printf("Please enter number length of the room(in meters): ");
  scanf("%lf", &length);
  printf("Please enter number width of the room(in meters): ");
  scanf("%lf", &width);
  printf("Please enter the time(in minutes): ");
  scanf("%lf", &time);

  finalVolume = totalVolume(height, length, width, numberOfStudents);
  mass = calculateMass(finalVolume, (temperature+273.15));
  heat = (80*60*time*numberOfStudents)/1000;

  FINALTEMP finalTemperatureValues = {heat, mass, C, temperature};
  finalTemperatureValues.finalTemperature1 = finalTemp(finalTemperatureValues);
  printf("The final temperatur is: %.2f",finalTemperatureValues.finalTemperature1);

}


double totalVolume(double h,double l, double w, double s){
        double volume;
        volume  = (h*w*l)-(s*0.075);
        return volume;
}

double calculateMass(double v, double temp){
        double mass = (P*v*M)/(R*temp);
        return mass;
}

double finalTemp(FINALTEMP ft){
        double temperature2;
        temperature2 = (ft.heat1/(ft.mass1*ft.c1))+ft.temp1;
        return temperature2;
}
```

Test cases:


"C:\Users\Vinul Gallapththi\Documents\Programming\assignment2\ass3\bin\Debug\ass3.exe"
Please enter number of students: 20
Please enter initial temperature(in Celcius): 20
Please enter number height of the room(in meters): 3
Please enter number length of the room(in meters): 30
Please enter number width of the room(in meters): 10
Please enter the time(in minutes): 15
The final tempreature is: 21.85
Process returned 31 (0x1F)   execution time : 28.969 s
Press any key to continue.


"C:\Users\Vinul Gallapththi\Documents\Programming\assignment2\ass3\bin\Debug\ass3.exe"
Please enter number of students: 35
Please enter initial temperature(in Celcius): 20
Please enter number height of the room(in meters): 3
Please enter number length of the room(in meters): 30
Please enter number width of the room(in meters): 10
Please enter the time(in minutes): 15
The final tempreature is: 23.25
Process returned 31 (0x1F)   execution time : 35.300 s
Press any key to continue.


Select "C:\Users\Vinul Gallapththi\Documents\Programming\assignment2\ass3\bin\Debug\ass3.exe"
Please enter number of students: 10
Please enter initial temperature(in Celcius): 25
Please enter number height of the room(in meters): 3.50
Please enter number length of the room(in meters): 21.40
Please enter number width of the room(in meters): 15.50
Please enter the time(in minutes): 15
The final tempreature is: 25.73
Process returned 31 (0x1F)   execution time : 30.434 s
Press any key to continue.


"C:\Users\Vinul Gallapththi\Documents\Programming\assignment2\ass3\bin\Debug\ass3.exe"
Please enter number of students: 0
Please enter initial temperature(in Celcius): 20
Please enter number height of the room(in meters): 2.50
Please enter number length of the room(in meters): 5.60
Please enter number width of the room(in meters): 4.10
Please enter the time(in minutes): 15
The final tempreature is: 20.00
Process returned 31 (0x1F)   execution time : 28.868 s
Press any key to continue.