MALAYSIAN SPANISH INSTITUTE

COMPUTER PROGRAMMING (STB24303)

REPORT PRACTICAL TASK 3

(MINI PROJECT: Fluid Dynamic Properties Calculation System)

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- INTRODUCTION

Computer Programming is defined as the process of creating computer software using a programming Language. Computer programs are written by Human individuals (Programmers). A computer program is a step set of instructions that a computer has to work through in a logical sequence in order to carry out a particular task. The computer executes these instructions (obeys the instructions) when told to do so by the user. Its also the process of taking an algorithm and encoding it into a notation, a programming language, so that it can be executed by a computer. The important first step is the need to have the solution. Without an algorithm there can be no program.

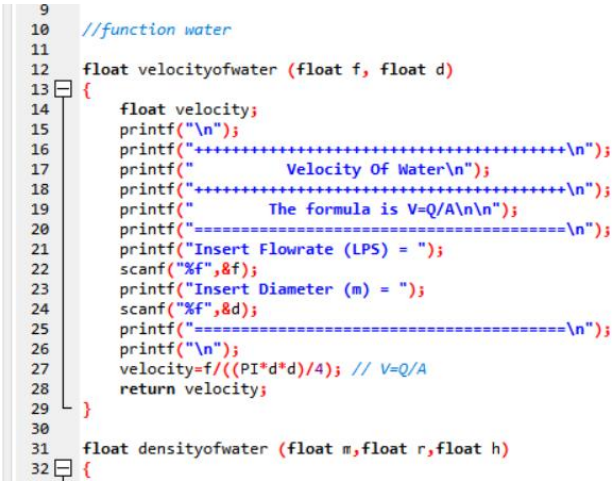
Our projects in computer programming is Fluid Dynamic Properties Calculation System. The solution to a fluid dynamics problem typically involves the calculation of various properties of the fluid, such as flow velocity, pressure, density, and temperature, as functions of space and time. Before the twentieth century, hydrodynamics was synonymous with fluid dynamics. Our project applications are to make it easier for humans to calculate and store data in the system. Its also used to create programs to solve problems or interpret data. Its also make the calculation more accurately. Computer programming helps in developing programming languages which are used for transforming computing problems into instructions. Its also help people to calculate faster and accurate in fluid dynamic properties.

- OBJECTIVE

The purpose of programming is to find a sequence of instructions that will automate the performance of a task (which can be as complex as an operating system) on a computer, often for solving a given problem. The objective of our mini project is to find a sequence of instructions that will automate the performance of a task (which can be as complex as an operating system) on a computer, often for solving a given problem. Its also make it more arranged and easy to understand.

- SCOPE AND LIMITATIONS

This type of programme is focused on calculation system. More accurately, to help people to calculate faster and accurate in fluid dynamic properties. Currently we are using C programming for it's coding and to make it more arranged and easy to understand, we used 'user defined function'.

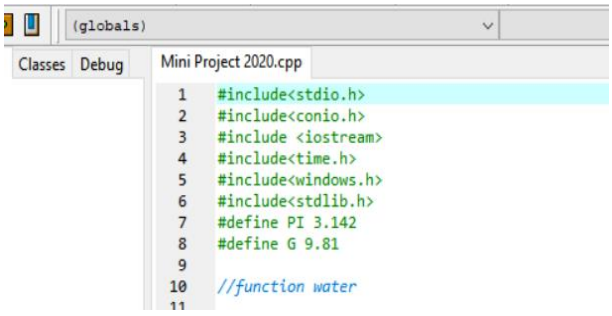


```
9
10  //function water
11
12  float velocityofwater (float f, float d)
13  {
14      float velocity;
15      printf("\n");
16      printf("++++++++++++++++++++++++++++++++++++++++\n");
17      printf("          Velocity Of Water\n");
18      printf("++++++++++++++++++++++++++++++++++++++++\n");
19      printf("        The formula is V=Q/A\n\n");
20      printf("========================================\n");
21      printf("Insert Flowrate (LPS) = ");
22      scanf("%f",&f);
23      printf("Insert Diameter (m) = ");
24      scanf("%f",&d);
25      printf("========================================\n");
26      printf("\n");
27      velocity=f/((PI*d*d)/4); // V=Q/A
28      return velocity;
29  }
30
31  float densityofwater (float m,float r,float h)
32  {
```

Example of 'user defined function' which is 'float'.

A header file is a file containing C declarations and macro definitions to be shared between several source files. The purpose of a header are :

- To declare the interfaces to parts of the operating system.
- To supply the definitions and declarations need to invoke system calls and libraries.



(globals)

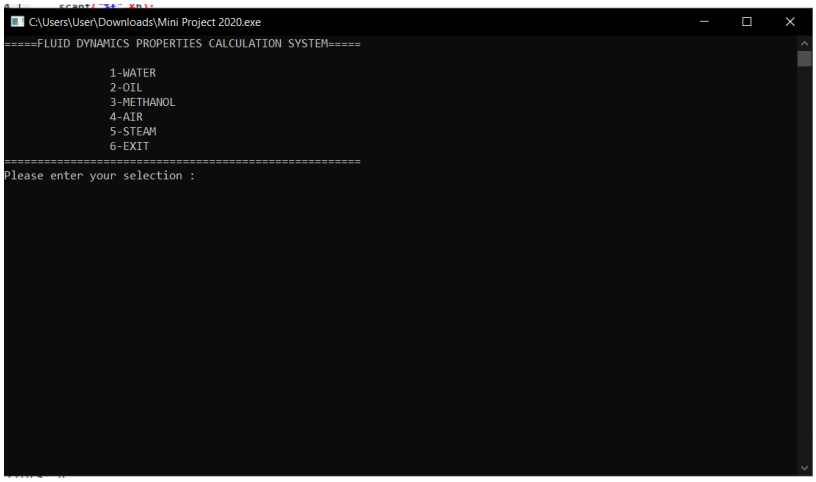
Classes Debug Mini Project 2020.cpp

```
1   #include<stdio.h>
2   #include<conio.h>
3   #include <iostream>
4   #include<time.h>
5   #include<windows.h>
6   #include<stdlib.h>
7   #define PI 3.142
8   #define G 9.81
9
10  //function water
11
```

Example of header file.

Fluid dynamic properties that included in the menu are :

- Water
- Oil
- Methanol
- Air
- Steam
- Exit



Example of our menu selection

We also have included the formula in our sub menu. We did some research about all of the formula that are frequently used and we have come across a bunch of it. We also have concluded the SI that are commonly used in ASIA region. Below are the formula that we included in the sub menu are :

Formula	
Velocity	Flowrate / Area
Density	Mass / Volume
Pressure	Density x gravity x height
Temperature	Heat loss / (mass x 4.22)

For the formula, we used ‘user defined function’ to make it easier to defined what is the formula needed and how to calculate it. We also defined it at the very beginning so it will be less work and arranged looking.

As for the sub menu, user need to select one of the menu as shown in figure 1.0,

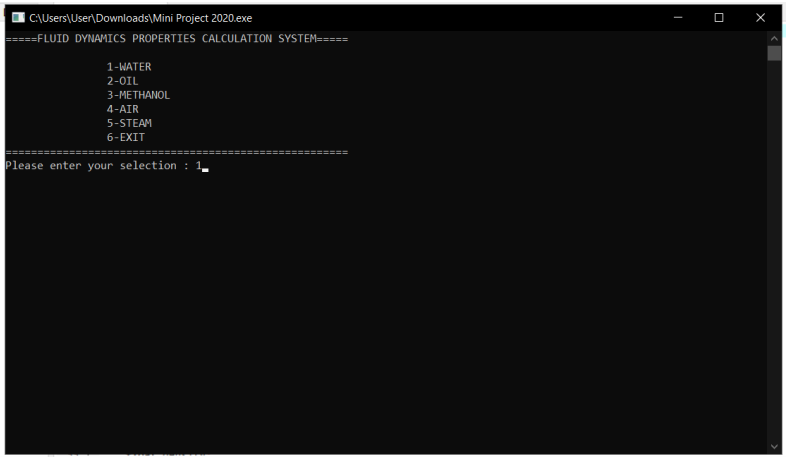


Figure 1.0

Assuming the user want to calculate water, after selecting water as in selection 1, the sub menu will appear as shown in figure 1.2,

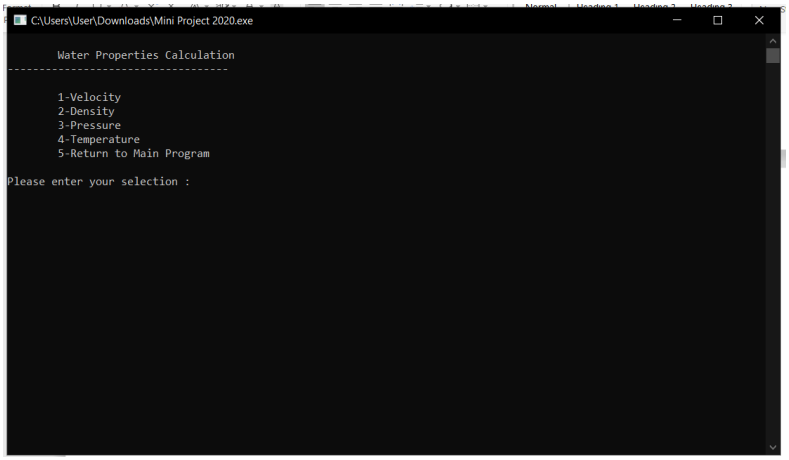


Figure 1.2

As you can see in figure 1.2, a 5 selection sub menu will appear. Assuming the user want to calculate the temperature of water as in selection 4,

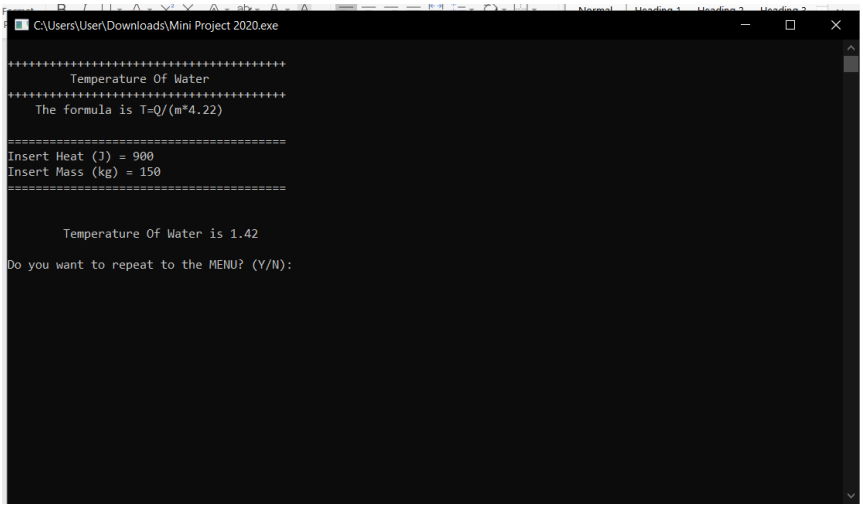


Figure 1.3

After selection, as shown in figure 1.3, it will show what kind of formula we are using to calculate the user selection. Then, the user need to fill in the exact temperature and mass to be used in this calculation. After fill in every detail it needed, it will show the output or answer that needed by the user using the information given.

After user completed their calculation, they can choose either to go back to its main menu or wanted to calculate under the same menu but different sub menu with just a simple yes or no, as shown below,

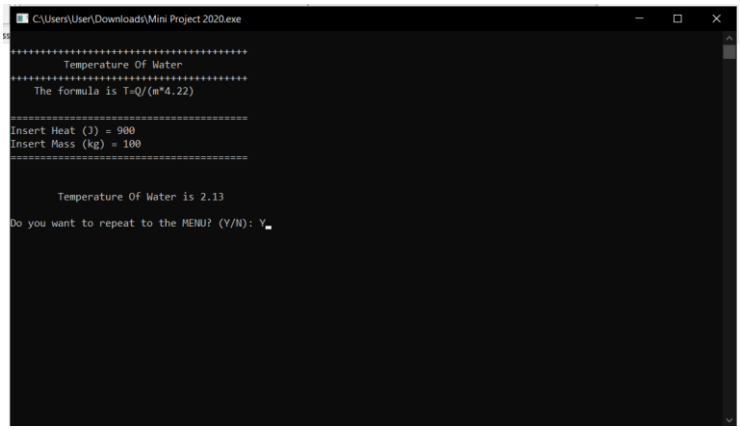


Figure 1.4, user selected Y

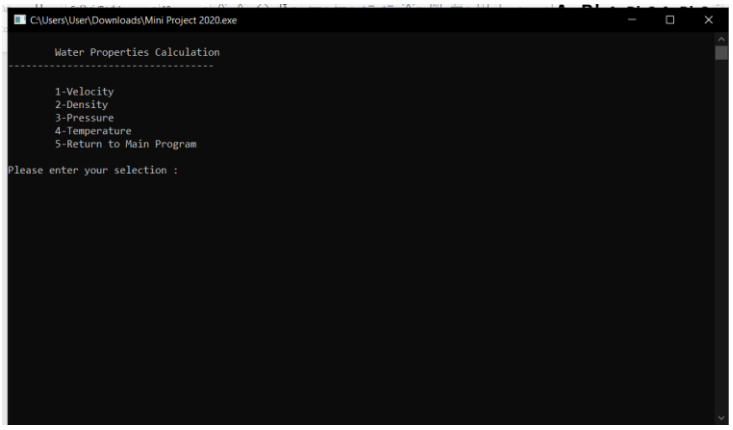


Figure 1.5, after select, it will bring back to the sub menu, wether the user need to calculate under the same menu.

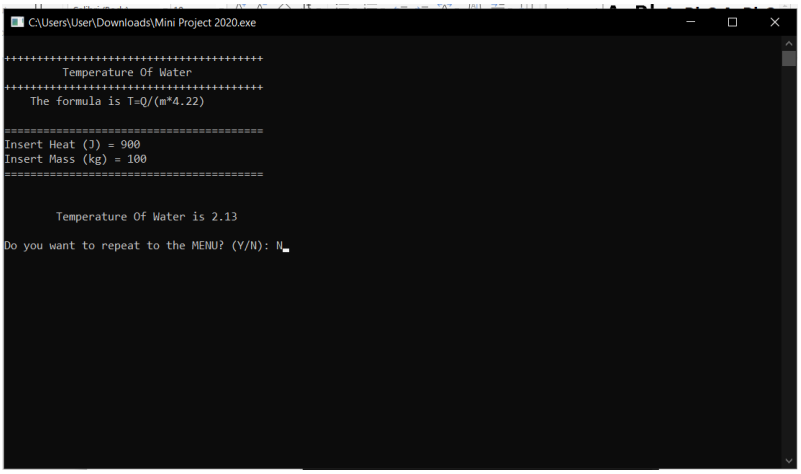


Figure 1.6, user selected N.

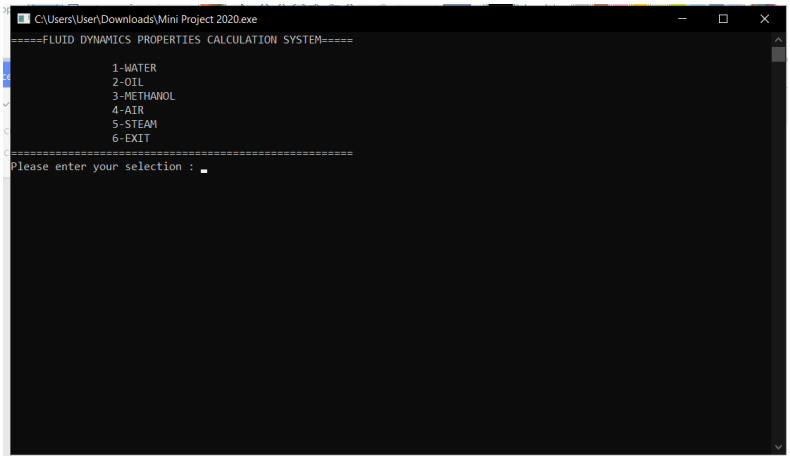


Figure 1.7, after select N, it will bring us back to the menu.

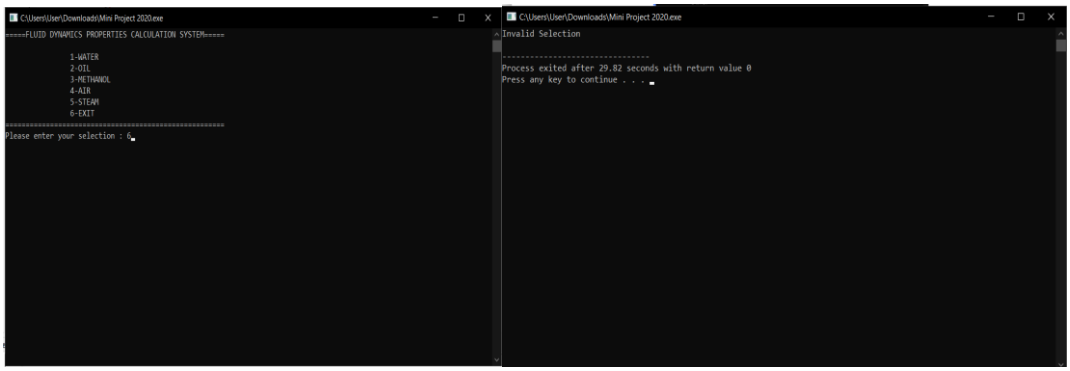


Figure 1.8

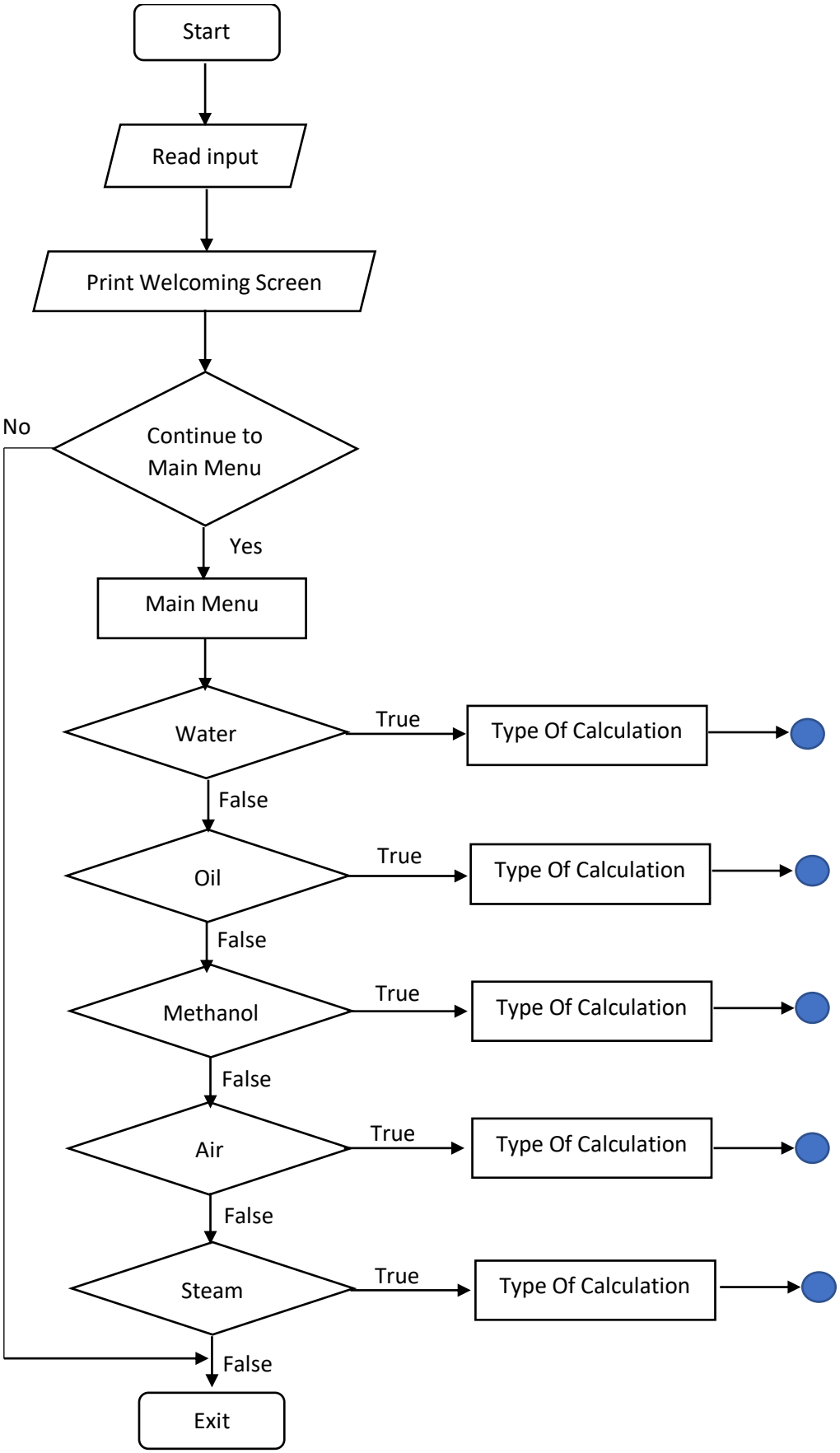
In figure 1.8, whenever the user done using this program, the user can select option 6 to exit the program.

Every option in the menu have the same sub menu like the example above. How to operate it also the same as the example. With this kind of programming, it will help those who in need to calculate fluid properties big time. It will shorten their time a lot. With just select an option and just fill in the requirement, user can skip those calculation.

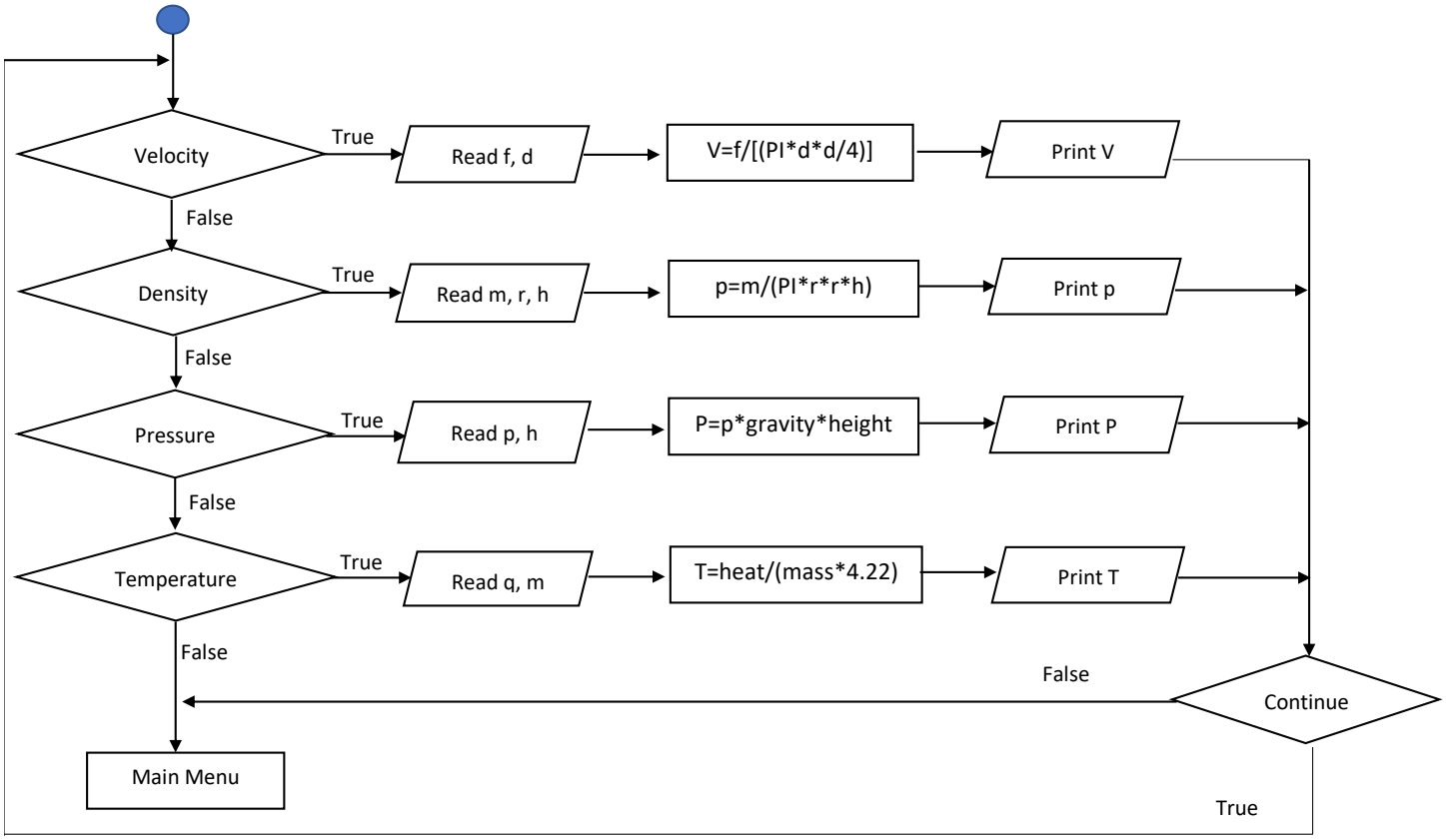
In this program, we are using choose selection syntax because in our program we need to choose whether to continue, return or terminate.

- WORKING OPERATIONS (FLOW CHART)

1) Main Menu



2) Sub Menu


Velocity
True
Read f, d
V=f/[(PI*d*d/4)]
Print V
False
Density
True
Read m, r, h
p=m/(PI*r*r*h)
Print p
False
Pressure
True
Read p, h
P=p*gravity*height
Print P
False
Temperature
True
Read q, m
T=heat/(mass*4.22)
Print T
False
Continue
False
Main Menu
True

- SOURCE CODE

```
#include<stdio.h>
#include<conio.h>
#include <iostream>
#include<windows.h>
#include<stdlib.h>
#define PI 3.142
#define G 9.81

int i=0, j=0;
char yn;
COORD coord={0,0};

void gotoxy(int x,int y)
{
   coord.X=x;
                        coord.Y=y;
                        SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE),coo
rd);
}

void SetColor(int value)
{
                        SetConsoleTextAttribute(GetStdHandle(STD_OUTPUT_HANDLE),value
);
}
```

```
//function water


float velocityofwater (float f, float d)
{
                        float velocity;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("   Water Properties Calculation   ");
                        gotoxy(63,15);SetColor(3);printf("            Velocity Of Water");
                        gotoxy(63,19);SetColor(3);printf("          The formula is V=Q/A");
                        gotoxy(63,24);SetColor(15);printf("Insert Flowrate (LPS) = ");
                        scanf("%f",&f);
                        gotoxy(63,26);SetColor(15);printf("Insert Diameter (m) = ");
                        scanf("%f",&d);
                        velocity=f/((PI*d*d)/4); // V=Q/A
                        return velocity;
```

```
}

float densityofwater (float m,float r,float h)
{
                        float density;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("   Water Properties Calculation   ");
                        gotoxy(63,15);SetColor(3);printf("           Density Of Water");
   gotoxy(63,19);SetColor(3);printf("          The formula is p=m/V");
                        gotoxy(63,23);SetColor(15);printf("Insert Mass (kg) = ");
                        scanf("%f",&m);
                        gotoxy(63,25);SetColor(15);printf("Insert Radius (m) = ");
                        scanf("%f",&r);
                        gotoxy(63,27);SetColor(15);printf("Insert Height (m) = ");
                        scanf("%f",&h);
                        density=m/(PI*r*r*h); // p=m/V
```

```
                        return density;
}

float pressureofwater (float p,float h)
{
                        float pressure;
    SetColor(11);
    for (i=99;i>=66;i--)
    {
        gotoxy(i,9);
        printf("\xDB");
                        }
    for (i=66;i<=99;i++)
    {
        gotoxy(i,11);
        printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("   Water Properties Calculation   ");
                        gotoxy(63,15);SetColor(3);printf("          Pressure Of Water");
                        gotoxy(63,19);SetColor(3);printf("       The formula is P=p*G*h");
                        gotoxy(63,24);SetColor(15);printf("Insert Density (kg/m^3) = ");
                        scanf("%f",&p);
                        gotoxy(63,26);SetColor(15);printf("Insert Height (m) = ");
                        scanf("%f",&h);
                        pressure=p*G*h; // P=p*G*h
                        return pressure;
```

```
}

float temperatureofwater (float q,float m)
{
                        float temperature;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("   Water Properties Calculation   ");
                        gotoxy(63,15);SetColor(3);printf("         Temperature Of Water");
                        gotoxy(63,19);SetColor(3);printf("      The formula is T=Q/(m*4.22)");
                        gotoxy(63,24);SetColor(15);printf("Insert Heat (J) = ");
                        scanf("%f",&q);
                        gotoxy(63,26);SetColor(15);printf("Insert Mass (kg) = ");
                        scanf("%f",&m);
                        temperature=q/(m*4.22); // T=Q/(m*4.22)
                        return temperature;
}
```

```
//function oil


float velocityofoil (float f, float d)
{
                        float velocity;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("    Oil Properties Calculation    ");
                        gotoxy(63,15);SetColor(3);printf("            Velocity Of Oil");
                        gotoxy(63,19);SetColor(3);printf("          The formula is V=Q/A");
                        gotoxy(63,24);SetColor(15);printf("Insert Flowrate (LPS) = ");
                        scanf("%f",&f);
                        gotoxy(63,26);SetColor(15);printf("Insert Diameter (m) = ");
                        scanf("%f",&d);
                        velocity=f/((PI*d*d)/4); // V=Q/A
                        return velocity;
```

```
}

float densityofoil (float m,float r,float h)
{
                        float density;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
   gotoxy(66,10);SetColor(189);printf("    Oil Properties Calculation    ");
                        gotoxy(63,15);SetColor(3);printf("            Density Of Oil");
   gotoxy(63,19);SetColor(3);printf("          The formula is p=m/V");
                        gotoxy(63,23);SetColor(15);printf("Insert Mass (kg) = ");
                        scanf("%f",&m);
                        gotoxy(63,25);SetColor(15);printf("Insert Radius (m) = ");
                        scanf("%f",&r);
                        gotoxy(63,27);SetColor(15);printf("Insert Height (m) = ");
                        scanf("%f",&h);
                        density=m/(PI*r*r*h); // p=m/V
```

```
                        return density;
}

float pressureofoil (float p,float h)
{
                        float pressure;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
   gotoxy(66,10);SetColor(189);printf("    Oil Properties Calculation    ");
                        gotoxy(63,15);SetColor(3);printf("          Pressure Of Oil");
                        gotoxy(63,19);SetColor(3);printf("       The formula is P=p*G*h");
                        gotoxy(63,24);SetColor(15);printf("Insert Density (kg/m^3) = ");
                        scanf("%f",&p);
                        gotoxy(63,26);SetColor(15);printf("Insert Height (m) = ");
                        scanf("%f",&h);
                        pressure=p*G*h; // P=p*G*h
                        return pressure;
```

```
}

float temperatureofoil (float q,float m)
{
                        float temperature;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
   gotoxy(66,10);SetColor(189);printf("    Oil Properties Calculation    ");
                        gotoxy(63,15);SetColor(3);printf("          Temperature Of Oil");
                        gotoxy(63,19);SetColor(3);printf("      The formula is T=Q/(m*4.22)");
                        gotoxy(63,24);SetColor(15);printf("Insert Heat (J) = ");
                        scanf("%f",&q);
                        gotoxy(63,26);SetColor(15);printf("Insert Mass (kg) = ");
                        scanf("%f",&m);
                        temperature=q/(m*4.22); // T=Q/(m*4.22)
                        return temperature;
}
```

```
//function methanol


float velocityofmethanol (float f, float d)
{
                        float velocity;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("  Methanol Properties Calculation ");
                        gotoxy(63,15);SetColor(3);printf("          Velocity Of Methanol");
                        gotoxy(63,19);SetColor(3);printf("          The formula is V=Q/A");
                        gotoxy(63,24);SetColor(15);printf("Insert Flowrate (LPS) = ");
                        scanf("%f",&f);
                        gotoxy(63,26);SetColor(15);printf("Insert Diameter (m) = ");
                        scanf("%f",&d);
                        velocity=f/((PI*d*d)/4); // V=Q/A
                        return velocity;
```

```
}

float densityofmethanol (float m,float r,float h)
{
                        float density;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("  Methanol Properties Calculation ");
                        gotoxy(63,15);SetColor(3);printf("          Density Of Methanol");
   gotoxy(63,19);SetColor(3);printf("          The formula is p=m/V");
                        gotoxy(63,23);SetColor(15);printf("Insert Mass (kg) = ");
                        scanf("%f",&m);
                        gotoxy(63,25);SetColor(15);printf("Insert Radius (m) = ");
                        scanf("%f",&r);
                        gotoxy(63,27);SetColor(15);printf("Insert Height (m) = ");
                        scanf("%f",&h);
                        density=m/(PI*r*r*h); // p=m/V
```

```
                        return density;
}

float pressureofmethanol (float p,float h)
{
                        float pressure;
    SetColor(11);
    for (i=99;i>=66;i--)
    {
        gotoxy(i,9);
        printf("\xDB");
                        }
    for (i=66;i<=99;i++)
    {
        gotoxy(i,11);
        printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("  Methanol Properties Calculation ");
                        gotoxy(63,15);SetColor(3);printf("         Pressure Of Methanol");
                        gotoxy(63,19);SetColor(3);printf("        The formula is P=p*G*h");
                        gotoxy(63,24);SetColor(15);printf("Insert Density (kg/m^3) = ");
                        scanf("%f",&p);
                        gotoxy(63,26);SetColor(15);printf("Insert Height (m) = ");
                        scanf("%f",&h);
                        pressure=p*G*h; // P=p*G*h
                        return pressure;
```

```
}

float temperatureofmethanol (float q,float m)
{
                        float temperature;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("  Methanol Properties Calculation ");
                        gotoxy(63,15);SetColor(3);printf("         Temperature Of Methanol");
                        gotoxy(63,19);SetColor(3);printf("       The formula is T=Q/(m*4.22)");
                        gotoxy(63,24);SetColor(15);printf("Insert Heat (J) = ");
                        scanf("%f",&q);
                        gotoxy(63,26);SetColor(15);printf("Insert Mass (kg) = ");
                        scanf("%f",&m);
                        temperature=q/(m*4.22); // T=Q/(m*4.22)
                        return temperature;
}
```

```
//function air


float velocityofair (float f, float d)
{
                        float velocity;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
   gotoxy(66,10);SetColor(189);printf("    Air Properties Calculation    ");
                        gotoxy(63,15);SetColor(3);printf("           Velocity Of Air");
                        gotoxy(63,19);SetColor(3);printf("         The formula is V=Q/A");
                        gotoxy(63,24);SetColor(15);printf("Insert Flowrate (LPS) = ");
                        scanf("%f",&f);
                        gotoxy(63,26);SetColor(15);printf("Insert Diameter (m) = ");
                        scanf("%f",&d);
                        velocity=f/((PI*d*d)/4); // V=Q/A
                        return velocity;
```

```
}

float densityofair (float m,float r,float h)
{
                        float density;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
   gotoxy(66,10);SetColor(189);printf("    Air Properties Calculation    ");
                        gotoxy(63,15);SetColor(3);printf("            Density Of Air");
   gotoxy(63,19);SetColor(3);printf("          The formula is p=m/V");
                        gotoxy(63,23);SetColor(15);printf("Insert Mass (kg) = ");
                        scanf("%f",&m);
                        gotoxy(63,25);SetColor(15);printf("Insert Radius (m) = ");
                        scanf("%f",&r);
                        gotoxy(63,27);SetColor(15);printf("Insert Height (m) = ");
                        scanf("%f",&h);
                        density=m/(PI*r*r*h); // p=m/V
```

```
                return density;
}

float pressureofair (float p,float h)
{
                float pressure;
    SetColor(11);
    for (i=99;i>=66;i--)
    {
        gotoxy(i,9);
        printf("\xDB");
                }
    for (i=66;i<=99;i++)
    {
        gotoxy(i,11);
        printf("\xDB");
                }
    gotoxy(66,10);SetColor(189);printf("    Air Properties Calculation    ");
                gotoxy(63,15);SetColor(3);printf("           Pressure Of Air");
                gotoxy(63,19);SetColor(3);printf("       The formula is P=p*G*h");
                gotoxy(63,24);SetColor(15);printf("Insert Density (kg/m^3) = ");
                scanf("%f",&p);
                gotoxy(63,26);SetColor(15);printf("Insert Height (m) = ");
                scanf("%f",&h);
                pressure=p*G*h; // P=p*G*h
                return pressure;
```

```
}

float temperatureofair (float q,float m)
{
                        float temperature;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
   gotoxy(66,10);SetColor(189);printf("    Air Properties Calculation    ");
                        gotoxy(63,15);SetColor(3);printf("          Temperature Of Air");
                        gotoxy(63,19);SetColor(3);printf("      The formula is T=Q/(m*4.22)");
                        gotoxy(63,24);SetColor(15);printf("Insert Heat (J) = ");
                        scanf("%f",&q);
                        gotoxy(63,26);SetColor(15);printf("Insert Mass (kg) = ");
                        scanf("%f",&m);
                        temperature=q/(m*4.22); // T=Q/(m*4.22)
                        return temperature;
}
```

```
//function steam


float velocityofsteam (float f, float d)
{
                        float velocity;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("   Steam Properties Calculation   ");
                        gotoxy(63,15);SetColor(3);printf("            Velocity Of Steam");
                        gotoxy(63,19);SetColor(3);printf("          The formula is V=Q/A");
                        gotoxy(63,24);SetColor(15);printf("Insert Flowrate (LPS) = ");
                        scanf("%f",&f);
                        gotoxy(63,26);SetColor(15);printf("Insert Diameter (m) = ");
                        scanf("%f",&d);
                        velocity=f/((PI*d*d)/4); // V=Q/A
                        return velocity;
```

```
}

float densityofsteam (float m,float r,float h)
{
                        float density;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("   Steam Properties Calculation   ");
                        gotoxy(63,15);SetColor(3);printf("           Density Of Steam");
   gotoxy(63,19);SetColor(3);printf("          The formula is p=m/V");
                        gotoxy(63,23);SetColor(15);printf("Insert Mass (kg) = ");
                        scanf("%f",&m);
                        gotoxy(63,25);SetColor(15);printf("Insert Radius (m) = ");
                        scanf("%f",&r);
                        gotoxy(63,27);SetColor(15);printf("Insert Height (m) = ");
                        scanf("%f",&h);
                        density=m/(PI*r*r*h); // p=m/V
```

```
                return density;
}

float pressureofsteam (float p,float h)
{
                float pressure;
    SetColor(11);
    for (i=99;i>=66;i--)
    {
        gotoxy(i,9);
        printf("\xDB");
                }
    for (i=66;i<=99;i++)
    {
        gotoxy(i,11);
        printf("\xDB");
                }
                gotoxy(66,10);SetColor(189);printf("   Steam Properties Calculation   ");
                gotoxy(63,15);SetColor(3);printf("          Pressure Of Water");
                gotoxy(63,19);SetColor(3);printf("       The formula is P=p*G*h");
                gotoxy(63,24);SetColor(15);printf("Insert Density (kg/m^3) = ");
                scanf("%f",&p);
                gotoxy(63,26);SetColor(15);printf("Insert Height (m) = ");
                scanf("%f",&h);
                pressure=p*G*h; // P=p*G*h
                return pressure;
```

```
}

float temperatureofsteam (float q,float m)
{
                        float temperature;
   SetColor(11);
   for (i=99;i>=66;i--)
   {
      gotoxy(i,9);
      printf("\xDB");
                        }
   for (i=66;i<=99;i++)
   {
      gotoxy(i,11);
      printf("\xDB");
                        }
                        gotoxy(66,10);SetColor(189);printf("   Steam Properties Calculation   ");
                        gotoxy(63,15);SetColor(3);printf("         Temperature Of Steam");
                        gotoxy(63,19);SetColor(3);printf("      The formula is T=Q/(m*4.22)");
                        gotoxy(63,24);SetColor(15);printf("Insert Heat (J) = ");
                        scanf("%f",&q);
                        gotoxy(63,26);SetColor(15);printf("Insert Mass (kg) = ");
                        scanf("%f",&m);
                        temperature=q/(m*4.22); // T=Q/(m*4.22)
                        return temperature;
}
```

```
void display_msg(void)
{
    printf("Invalid Selection\n");
}


int main()
{
                    float  velocity, density, pressure, temperature, f, d, m, r, h, p, q;
                    int selection;
                    char figure, option;


                    char load0[50]="TO FLUID DYNAMICS PROPERTIES CALCULATION
SYSTEM";
                    char load1[50]="DEVELOPED BY:";
                    char load2[50]="1.BURHANUDDIN AL HELMY";
                    char load3[50]="2.FAHMI KHALILI";
                    char load4[50]="3.NOR ATIKAH SAMSURI";
                    char load5[50]="4.NUR ATIKAH MASRAN";
                    char load6[50]="CHECKED BY:";
                    char load7[50]="MADAM NORZALINA";
                    char load8[50]="THANKS FOR USING OUR PROGRAM";
                    char load9[50]="(c) 2020 MPCP , INC . ALL RIGHTS RESERVED";
```

```
                printf("\n\n\n\nPress any key to view your program in FULLSCREEN.\n\n");
                system("pause");
                system("cls");
                SetColor(11);
                gotoxy(60,11);
                {
                   printf("\xB2");
                   Sleep(50);
                }
                gotoxy(60,12);
                {
                   printf("\xB2");
                   Sleep(50);
                }
                gotoxy(60,13);
                {
                   printf("\xB2");
                   Sleep(50);
                }
                gotoxy(60,14);
                {
                   printf("\xB2");
                   Sleep(50);
                }
                gotoxy(60,15);
```

```
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(61,14);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(62,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(63,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(64,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(65,14);
{
```

```
    printf("\xB2");
    Sleep(50);
}
gotoxy(66,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(66,14);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(66,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(66,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(66,11);
{
    printf("\xB2");
```

```
    Sleep(50);
}
gotoxy(68,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(68,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(68,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(68,14);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(68,15);
{
    printf("\xB2");
    Sleep(50);
```

```
}
gotoxy(69,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(70,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(71,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(72,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(69,13);
{
    printf("\xB2");
    Sleep(50);
}
```

```
gotoxy(70,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(71,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(69,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(70,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(71,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(72,15);
```

```
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(74,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(74,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(74,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(74,14);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(74,15);
{
```

```
    printf("\xB2");
    Sleep(50);
}
gotoxy(75,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(76,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(77,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(78,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(84,11);
{
    printf("\xB2");
```

```
    Sleep(50);
}
gotoxy(83,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(82,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(81,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(80,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(80,13);
{
    printf("\xB2");
    Sleep(50);
```

```
}
gotoxy(80,14);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(81,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(82,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(83,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(84,15);
{
    printf("\xB2");
    Sleep(50);
}
```

```
gotoxy(89,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(88,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(87,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(86,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(86,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(86,14);
```

```
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(87,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(88,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(89,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(90,14);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(90,13);
{
```

```
    printf("\xB2");
    Sleep(50);
}
gotoxy(90,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(92,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(92,14);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(92,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(92,12);
{
    printf("\xB2");
```

```
    Sleep(50);
}
gotoxy(92,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(93,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(94,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(95,14);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(96,13);
{
    printf("\xB2");
    Sleep(50);
```

```
}
gotoxy(97,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(98,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(98,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(98,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(98,14);
{
    printf("\xB2");
    Sleep(50);
}
```

```
gotoxy(98,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(100,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(100,12);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(100,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(100,14);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(100,15);
```

```
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(101,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(102,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(103,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(104,11);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(101,13);
{
```

```
    printf("\xB2");
    Sleep(50);
}
gotoxy(102,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(103,13);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(101,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(102,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(103,15);
{
    printf("\xB2");
```

```
    Sleep(50);
}
gotoxy(104,15);
{
    printf("\xB2");
    Sleep(50);
}
gotoxy(59,17);
for(i=0;i<=47;i++)
{
    printf("%c",load0[i]);
    Sleep(50);
}
SetColor(7);
gotoxy(60,19);
for(i=0;i<=13;i++)
{
    printf("%c",load1[i]);
    Sleep(50);
}
gotoxy(74,21);
for(i=0;i<=22;i++)
{
    printf("%c",load2[i]);
    Sleep(50);
}
```

```
gotoxy(74,22);
for(i=0;i<=15;i++)
{
    printf("%c",load3[i]);
    Sleep(50);
}
gotoxy(74,23);
for(i=0;i<=20;i++)
{
    printf("%c",load4[i]);
    Sleep(50);
}
gotoxy(74,24);
for(i=0;i<=19;i++)
{
    printf("%c",load5[i]);
    Sleep(50);
}
gotoxy(60,25);
for(i=0;i<=16;i++)
{
    printf("%c",load6[i]);
    Sleep(50);
}
gotoxy(74,27);
for(i=0;i<=15;i++)
```

```
{
    printf("%c",load7[i]);
    Sleep(50);
}
////////////////////////////////////////////////
SetColor(1);
for(i=109;i>=55;i--)
{
    gotoxy(i,7);
    printf("\xDC");
    Sleep(10);
}
for(i=8;i<=36;i++)
{
    gotoxy(55,i);
    printf("\xDB");
    Sleep(10);
}
for(i=56;i<=109;i++)
{
    gotoxy(i,36);
    printf("\xDC");
    Sleep(10);
}
for(i=36;i>=8;i--)
{
```

```
            gotoxy(109,i);
            printf("\xDB");
            Sleep(10);
        }
        for(i=1;i<=1;i++)
        {
            gotoxy(91,30);SetColor(0);printf("               ");
            gotoxy(60,30);SetColor(14);printf("Do you want to continue? (Y/N):  ");
            scanf("%c", &yn);
            if (yn=='Y' || yn=='y')
            {
                    system("cls");
                    goto menu;
            }
            else if (yn=='N' || yn=='n')
            {
                    system("cls");
                    goto Exit;
            }

}

        menu:
            {
                    SetColor(7);
            for(i=109;i>=55;i--)
```

```
        {
        gotoxy(i,7);
        printf("\xDC");
        }
        for(i=8;i<=36;i++)
        {
        gotoxy(55,i);
        printf("\xDB");
        }
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
    }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,32);
        printf("\xDC");
        }

    SetColor(11);
```

```
                    for (i=105;i>=59;i--)
                    {
                       gotoxy(i,10);
                       printf("\xDB");
                                }
                    for (i=59;i<=105;i++)
                    {
                       gotoxy(i,12);
                       printf("\xDB");
                                }
                                gotoxy(59,11);SetColor(189);printf("         FLUID     DYNAMICS
PROPERTIES CALCULATION SYSTEM ");

                    SetColor(15);
                    for (i=75;i>=65;i--)
                    {
                       gotoxy(i,14);
                       printf("\xDB");
                                }
                    for (i=65;i<=75;i++)
                    {
                       gotoxy(i,16);
                       printf("\xDB");
                                }
                                gotoxy(65,15);SetColor(253);printf ("   WATER   ");
```

```
    SetColor(15);
for (i=98;i>=88;i--)
{
    gotoxy(i,14);
    printf("\xDB");
                }
for (i=88;i<=98;i++)
{
    gotoxy(i,16);
    printf("\xDB");
                }
                gotoxy(88,15);SetColor(253);printf ("    OIL    ");

                SetColor(15);
for (i=87;i>=76;i--)
{
    gotoxy(i,18);
    printf("\xDB");
                }
for (i=76;i<=87;i++)
{
    gotoxy(i,20);
    printf("\xDB");
                }
                gotoxy(76,19);SetColor(253);printf ("  METHANOL  ");
```

```
SetColor(15);
for (i=75;i>=65;i--)
{
   gotoxy(i,22);
   printf("\xDB");
            }
for (i=65;i<=75;i++)
{
   gotoxy(i,24);
   printf("\xDB");
            }
            gotoxy(65,23);SetColor(253);printf ("    AIR    ");

            SetColor(15);
for (i=98;i>=88;i--)
{
   gotoxy(i,22);
   printf("\xDB");
            }
for (i=88;i<=98;i++)
{
   gotoxy(i,24);
   printf("\xDB");
            }
            gotoxy(88,23);SetColor(253);printf ("   STEAM   ");
```

```
                    SetColor(15);
                for (i=86;i>=77;i--)
                {
                   gotoxy(i,28);
                   printf("\xDB");
                    }
                for (i=77;i<=86;i++)
                {
                   gotoxy(i,30);
                   printf("\xDB");
                    }
                    gotoxy(77,29);SetColor(253);printf ("   EXIT   ");
                gotoxy(61,34);SetColor(15);printf ("Enter your selection (Initial Alphabet) :
");
                    scanf ("%s" , &option);
                    system("cls");
                   }

   option:
   if(option=='W' || option=='w')
   {
      SetColor(7);
                for(i=109;i>=55;i--)
                   {
                   gotoxy(i,7);
                   printf("\xDC");
```

```
                    }
                    for(i=8;i<=36;i++)
                    {
                    gotoxy(55,i);
                    printf("\xDB");
                    }
                    for(i=56;i<=109;i++)
                    {
                    gotoxy(i,36);
                    printf("\xDC");
                    }
                    for(i=36;i>=8;i--)
                    {
                    gotoxy(109,i);
                    printf("\xDB");
}
for(i=56;i<=108;i++)
                    {
                    gotoxy(i,32);
                    printf("\xDC");
                    }

SetColor(11);
for (i=98;i>=65;i--)
{
gotoxy(i,10);
```

```
printf("\xDB");
                        }
for (i=65;i<=98;i++)
{
gotoxy(i,12);
printf("\xDB");
                        }
                        gotoxy(65,11);SetColor(189);printf("   Water Properties Calculation   ");

SetColor(7);
for (i=89;i>=74;i--)
{
    gotoxy(i,16);
                    printf("\xDC");
                        }
                        for (i=14;i<=16;i++)
                        {
                                gotoxy(74,i);
                                printf("\xDB");
                        }
for (i=74;i<=89;i++)
{
                    gotoxy(i,14);
                    printf("\xDC");
                        }
                        for (i=16;i>=15;i--)
```

```
{
                    gotoxy(89,i);
                    printf("\xDB");
                       }
                       gotoxy(75,15);SetColor(15);printf("  1-Velocity ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,19);
                    printf("\xDC");
                       }
                       for (i=17;i<=19;i++)
                       {
                                gotoxy(74,i);
                                printf("\xDB");
                       }
for (i=74;i<=89;i++)
{
                    gotoxy(i,17);
                    printf("\xDC");
                       }
                       for (i=19;i>=18;i--)
{
                    gotoxy(89,i);
                    printf("\xDB");
```

```
                    }
                    gotoxy(75,18);SetColor(15);printf("  2-Density  ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,22);
                printf("\xDC");
                    }
                    for (i=20;i<=22;i++)
                    {
                            gotoxy(74,i);
                            printf("\xDB");
                    }
for (i=74;i<=89;i++)
{
                gotoxy(i,20);
                printf("\xDC");
                    }
                    for (i=22;i>=21;i--)
{
                gotoxy(89,i);
                printf("\xDB");
                    }
                    gotoxy(75,21);SetColor(15);printf("  3-Pressure ");
```

```
SetColor(7);
for (i=89;i>=74;i--)
{
    gotoxy(i,25);
                printf("\xDC");
                }
                for (i=23;i<=25;i++)
                {
                        gotoxy(74,i);
                        printf("\xDB");
                }
for (i=74;i<=89;i++)
{
                gotoxy(i,23);
                printf("\xDC");
                }
                for (i=25;i>=24;i--)
{
                gotoxy(89,i);
                printf("\xDB");
                }
                gotoxy(75,24);SetColor(15);printf("4-Temperature");

                SetColor(15);
for (i=89;i>=74;i--)
{
```

```
                gotoxy(i,27);
                printf("\xDB");
                   }
for (i=74;i<=89;i++)
{
                gotoxy(i,29);
                printf("\xDB");
                   }
                   gotoxy(74,28);SetColor(249);printf("   5-Main Menu  ");
                   gotoxy(61,34);SetColor(15);printf("Please enter your selection : ");
                   scanf ("%d" , &selection);
                   system("cls");

if (selection==1)
{
                        SetColor(7);
                   for(i=109;i>=55;i--)
                      {
                      gotoxy(i,7);
                      printf("\xDC");
                      }
                      for(i=8;i<=36;i++)
                      {
                      gotoxy(55,i);
                      printf("\xDB");
                      }
```

```
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
}
for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,21);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
```

```
                    {
                    gotoxy(i,29);
                    printf("\xDC");
                    }

        velocity=velocityofwater(f, d);
        gotoxy(63,31);SetColor(15);printf("Velocity Of Water is %.2f", velocity);

                    gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                    scanf("%s", &figure);

                        if (figure=='Y' || figure=='y')
                        {
                        system ("CLS");
                    goto option;
                        }
                        else if(figure=='N' || figure=='n')
                        {
                        system ("CLS");
                    goto menu;
                    }
                }

                else if (selection==2)
                {
```

```
                SetColor(7);
    for(i=109;i>=55;i--)
        {
        gotoxy(i,7);
        printf("\xDC");
        }
        for(i=8;i<=36;i++)
        {
        gotoxy(55,i);
        printf("\xDB");
        }
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
}
for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
```

```
                    for(i=56;i<=108;i++)
                        {
                        gotoxy(i,17);
                        printf("\xDC");
                        }
                    for(i=56;i<=108;i++)
                        {
                        gotoxy(i,21);
                        printf("\xDC");
                        }
                    for(i=56;i<=108;i++)
                        {
                        gotoxy(i,29);
                        printf("\xDC");
                        }

                            density=densityofwater(m,r,h);
                            gotoxy(63,31);SetColor(15);printf("Density Of Water is %.2f",
density);

                            gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                        scanf("%s", &figure);

                            if (figure=='Y' || figure=='y')
                            {
```

```
            system ("CLS");
    goto option;
            }
            else if(figure=='N' || figure=='n')
            {
            system ("CLS");
    goto menu;
    }
}

else if (selection==3)
{
            SetColor(7);
for(i=109;i>=55;i--)
    {
    gotoxy(i,7);
    printf("\xDC");
    }
    for(i=8;i<=36;i++)
    {
    gotoxy(55,i);
    printf("\xDB");
    }
    for(i=56;i<=109;i++)
    {
    gotoxy(i,36);
```

```
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
    }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,21);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,29);
        printf("\xDC");
```

```
                    }

                        pressure=pressureofwater(p,h);
                        gotoxy(63,31);SetColor(15);printf("Pressure Of Water is %.2f",
pressure);

                        gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                    scanf("%s", &figure);

                        if (figure=='Y' || figure=='y')
                        {
                        system ("CLS");
                    goto option;
                        }
                        else if(figure=='N' || figure=='n')
                        {
                        system ("CLS");
                    goto menu;
                    }
                }

    else if (selection==4)
                    {
                        SetColor(7);
                    for(i=109;i>=55;i--)
```

```
        {
        gotoxy(i,7);
        printf("\xDC");
        }
        for(i=8;i<=36;i++)
        {
        gotoxy(55,i);
        printf("\xDB");
        }
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
    }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
```

```
                gotoxy(i,17);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,21);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,29);
                printf("\xDC");
                }

                    temperature=temperatureofwater(q,m);
                    gotoxy(63,31);SetColor(15);printf("Temperature Of Water is %.2f", temperature);

                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the MENU? (Y/N): " );
                scanf("%s", &figure);

                    if (figure=='Y' || figure=='y')
                    {
                    system ("CLS");
                goto option;
```

```
                    }
                    else if(figure=='N' || figure=='n')
                    {
                    system ("CLS");
                goto menu;
                }
            }

            else if (selection==5)
            {
                    system("cls");
                    goto menu;
            }

            else

            display_msg();
    system ("CLS");
            goto menu;

}

 else if(option=='O' || option=='o')
 {
    SetColor(7);
                for(i=109;i>=55;i--)
```

```
                    {
                    gotoxy(i,7);
                    printf("\xDC");
                    }
                    for(i=8;i<=36;i++)
                    {
                    gotoxy(55,i);
                    printf("\xDB");
                    }
                    for(i=56;i<=109;i++)
                    {
                    gotoxy(i,36);
                    printf("\xDC");
                    }
                    for(i=36;i>=8;i--)
                    {
                    gotoxy(109,i);
                    printf("\xDB");
}
for(i=56;i<=108;i++)
                    {
                    gotoxy(i,32);
                    printf("\xDC");
                    }

SetColor(11);
```

```
for (i=98;i>=65;i--)
{
gotoxy(i,10);
printf("\xDB");
                        }
for (i=65;i<=98;i++)
{
gotoxy(i,12);
printf("\xDB");
                        }
                        gotoxy(65,11);SetColor(189);printf("    Oil Properties Calculation    ");

SetColor(7);
for (i=89;i>=74;i--)
{
    gotoxy(i,16);
                    printf("\xDC");
                        }
                        for (i=14;i<=16;i++)
                        {
                                gotoxy(74,i);
                                printf("\xDB");
                        }
for (i=74;i<=89;i++)
{
                    gotoxy(i,14);
```

```
                printf("\xDC");
                   }
                   for (i=16;i>=15;i--)
{
                gotoxy(89,i);
                printf("\xDB");
                   }
                   gotoxy(75,15);SetColor(15);printf("  1-Velocity ");

SetColor(7);
for (i=89;i>=74;i--)
{
    gotoxy(i,19);
                printf("\xDC");
                   }
                   for (i=17;i<=19;i++)
                   {
                        gotoxy(74,i);
                        printf("\xDB");
                   }
for (i=74;i<=89;i++)
{
                gotoxy(i,17);
                printf("\xDC");
                   }
                   for (i=19;i>=18;i--)
```

```
{
                    gotoxy(89,i);
                    printf("\xDB");
                       }
                       gotoxy(75,18);SetColor(15);printf("  2-Density  ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,22);
                    printf("\xDC");
                       }
                       for (i=20;i<=22;i++)
                       {
                                gotoxy(74,i);
                                printf("\xDB");
                       }
for (i=74;i<=89;i++)
{
                    gotoxy(i,20);
                    printf("\xDC");
                       }
                       for (i=22;i>=21;i--)
{
                    gotoxy(89,i);
                    printf("\xDB");
```

```
                    }
                    gotoxy(75,21);SetColor(15);printf("  3-Pressure ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,25);
                printf("\xDC");
                    }
                    for (i=23;i<=25;i++)
                    {
                            gotoxy(74,i);
                            printf("\xDB");
                    }
for (i=74;i<=89;i++)
{
                gotoxy(i,23);
                printf("\xDC");
                    }
                    for (i=25;i>=24;i--)
{
                gotoxy(89,i);
                printf("\xDB");
                    }
                    gotoxy(75,24);SetColor(15);printf("4-Temperature");
```

```
                    SetColor(15);
for (i=89;i>=74;i--)
{
                gotoxy(i,27);
                printf("\xDB");
                   }
for (i=74;i<=89;i++)
{
                gotoxy(i,29);
                printf("\xDB");
                   }
                   gotoxy(74,28);SetColor(249);printf("   5-Main Menu  ");
                   gotoxy(61,34);SetColor(15);printf("Please enter your selection : ");
                   scanf ("%d" , &selection);
                   system("cls");

if (selection==1)
{
                        SetColor(7);
                   for(i=109;i>=55;i--)
                      {
                      gotoxy(i,7);
                      printf("\xDC");
                      }
                      for(i=8;i<=36;i++)
                      {
```

```
        gotoxy(55,i);
        printf("\xDB");
        }
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
    }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,21);
```

```
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,29);
                printf("\xDC");
                }

                    velocity=velocityofoil(f, d);
    gotoxy(63,31);SetColor(15);printf("Velocity Of Oil is %.2f", velocity);

                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the MENU? (Y/N): " );
                scanf("%s", &figure);

                    if (figure=='Y' || figure=='y')
                    {
                    system ("CLS");
                goto option;
                    }
                    else if(figure=='N' || figure=='n')
                    {
                    system ("CLS");
                goto menu;
                }
            }
```

```
    else if (selection==2)
    {
            SetColor(7);
    for(i=109;i>=55;i--)
       {
       gotoxy(i,7);
       printf("\xDC");
       }
       for(i=8;i<=36;i++)
       {
       gotoxy(55,i);
       printf("\xDB");
       }
       for(i=56;i<=109;i++)
       {
       gotoxy(i,36);
       printf("\xDC");
       }
       for(i=36;i>=8;i--)
       {
       gotoxy(109,i);
       printf("\xDB");
  }
  for(i=56;i<=108;i++)
       {
```

```
                gotoxy(i,13);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,17);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,21);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,29);
                printf("\xDC");
                }

                    density=densityofoil(m,r,h);
                    gotoxy(63,31);SetColor(15);printf("Density Of Oil is %.2f",
density);

                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                scanf("%s", &figure);
```

```
            if (figure=='Y' || figure=='y')
            {
            system ("CLS");
    goto option;
            }
            else if(figure=='N' || figure=='n')
            {
            system ("CLS");
    goto menu;
    }
}

else if (selection==3)
{
            SetColor(7);
for(i=109;i>=55;i--)
    {
    gotoxy(i,7);
    printf("\xDC");
    }
    for(i=8;i<=36;i++)
    {
    gotoxy(55,i);
    printf("\xDB");
    }
```

```
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
}
for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,21);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
```

```
                    {
                    gotoxy(i,29);
                    printf("\xDC");
                    }

                        pressure=pressureofoil(p,h);
                        gotoxy(63,31);SetColor(15);printf("Pressure Of Oil is %.2f",
pressure);

                    gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                    scanf("%s", &figure);

                        if (figure=='Y' || figure=='y')
                        {
                        system ("CLS");
                    goto option;
                        }
                        else if(figure=='N' || figure=='n')
                        {
                        system ("CLS");
                    goto menu;
                    }
                }

    else if (selection==4)
```

```
    {
            SetColor(7);
    for(i=109;i>=55;i--)
        {
        gotoxy(i,7);
        printf("\xDC");
        }
        for(i=8;i<=36;i++)
        {
        gotoxy(55,i);
        printf("\xDB");
        }
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
}
for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
```

```
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,17);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,21);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,29);
                printf("\xDC");
                }

                    temperature=temperatureofoil(q,m);
                    gotoxy(63,31);SetColor(15);printf("Temperature Of Oil is %.2f",
temperature);

                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                scanf("%s", &figure);

                    if (figure=='Y' || figure=='y')
```

```
                {
                system ("CLS");
            goto option;
                }
                else if(figure=='N' || figure=='n')
                {
                system ("CLS");
            goto menu;
            }
        }

        else if (selection==5)
        {
                system("cls");
                goto menu;
        }

        else

        display_msg();
    system ("CLS");
                goto menu;

}

 else if(option=='M' || option=='m')
```

```
{
   SetColor(7);
                        for(i=109;i>=55;i--)
                           {
                           gotoxy(i,7);
                           printf("\xDC");
                           }
                           for(i=8;i<=36;i++)
                           {
                           gotoxy(55,i);
                           printf("\xDB");
                           }
                           for(i=56;i<=109;i++)
                           {
                           gotoxy(i,36);
                           printf("\xDC");
                           }
                           for(i=36;i>=8;i--)
                           {
                           gotoxy(109,i);
                           printf("\xDB");
   }
   for(i=56;i<=108;i++)
                           {
                           gotoxy(i,32);
                           printf("\xDC");
```

```
                        }


        SetColor(11);
        for (i=98;i>=65;i--)
        {
        gotoxy(i,10);
        printf("\xDB");
                        }
        for (i=65;i<=98;i++)
        {
        gotoxy(i,12);
        printf("\xDB");
                        }
                        gotoxy(65,11);SetColor(189);printf("   Methanol Properties Calculation
");


        SetColor(7);
        for (i=89;i>=74;i--)
        {
           gotoxy(i,16);
                        printf("\xDC");
                        }
                        for (i=14;i<=16;i++)
                        {
                                gotoxy(74,i);
                                printf("\xDB");
```

```
                    }
for (i=74;i<=89;i++)
{
                gotoxy(i,14);
                printf("\xDC");
                    }
                    for (i=16;i>=15;i--)
{
                gotoxy(89,i);
                printf("\xDB");
                    }
                    gotoxy(75,15);SetColor(15);printf("  1-Velocity ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,19);
                printf("\xDC");
                    }
                    for (i=17;i<=19;i++)
                    {
                            gotoxy(74,i);
                            printf("\xDB");
                    }
for (i=74;i<=89;i++)
{
```

```
                    gotoxy(i,17);
                    printf("\xDC");
                       }
                       for (i=19;i>=18;i--)
{
                    gotoxy(89,i);
                    printf("\xDB");
                       }
                       gotoxy(75,18);SetColor(15);printf("  2-Density  ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,22);
                    printf("\xDC");
                       }
                       for (i=20;i<=22;i++)
                       {
                                gotoxy(74,i);
                                printf("\xDB");
                       }
for (i=74;i<=89;i++)
{
                    gotoxy(i,20);
                    printf("\xDC");
                       }
```

```
                    for (i=22;i>=21;i--)
{
                gotoxy(89,i);
                printf("\xDB");
                    }
                    gotoxy(75,21);SetColor(15);printf("  3-Pressure ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,25);
                printf("\xDC");
                    }
                    for (i=23;i<=25;i++)
                    {
                            gotoxy(74,i);
                            printf("\xDB");
                    }
for (i=74;i<=89;i++)
{
                gotoxy(i,23);
                printf("\xDC");
                    }
                    for (i=25;i>=24;i--)
{
                gotoxy(89,i);
```

```
                printf("\xDB");
                }
                gotoxy(75,24);SetColor(15);printf("4-Temperature");

                SetColor(15);
for (i=89;i>=74;i--)
{
                gotoxy(i,27);
                printf("\xDB");
                }
for (i=74;i<=89;i++)
{
                gotoxy(i,29);
                printf("\xDB");
                }
                gotoxy(74,28);SetColor(249);printf("   5-Main Menu  ");
                gotoxy(61,34);SetColor(15);printf("Please enter your selection : ");
                scanf ("%d" , &selection);
                system("cls");

if (selection==1)
{
                        SetColor(7);
                for(i=109;i>=55;i--)
                   {
                   gotoxy(i,7);
```

```
        printf("\xDC");
        }
        for(i=8;i<=36;i++)
        {
        gotoxy(55,i);
        printf("\xDB");
        }
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
    }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
```

```
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,21);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,29);
                printf("\xDC");
                }

    velocity=velocityofmethanol(f, d);
    gotoxy(63,31);SetColor(15);printf("Velocity Of Methanol is %.2f", velocity);

                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the MENU? (Y/N): " );
                scanf("%s", &figure);

                    if (figure=='Y' || figure=='y')
                    {
                    system ("CLS");
                goto option;
                    }
                    else if(figure=='N' || figure=='n')
                    {
```

```
            system ("CLS");
    goto menu;
    }
}

else if (selection==2)
{
            SetColor(7);
for(i=109;i>=55;i--)
    {
    gotoxy(i,7);
    printf("\xDC");
    }
    for(i=8;i<=36;i++)
    {
    gotoxy(55,i);
    printf("\xDB");
    }
    for(i=56;i<=109;i++)
    {
    gotoxy(i,36);
    printf("\xDC");
    }
    for(i=36;i>=8;i--)
    {
    gotoxy(109,i);
```

```
        printf("\xDB");
    }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,21);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,29);
        printf("\xDC");
        }

            density=densityofmethanol(m,r,h);
            gotoxy(63,31);SetColor(15);printf("Density Of Methanol is
%.2f", density);
```

```
                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                scanf("%s", &figure);

                    if (figure=='Y' || figure=='y')
                    {
                    system ("CLS");
                goto option;
                    }
                    else if(figure=='N' || figure=='n')
                    {
                    system ("CLS");
                goto menu;
                }
            }

            else if (selection==3)
            {
                    SetColor(7);
            for(i=109;i>=55;i--)
                {
                gotoxy(i,7);
                printf("\xDC");
                }
                for(i=8;i<=36;i++)
```

```
        {
        gotoxy(55,i);
        printf("\xDB");
        }
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
    }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
```

```
                gotoxy(i,21);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,29);
                printf("\xDC");
                }

                    pressure=pressureofmethanol(p,h);
                    gotoxy(63,31);SetColor(15);printf("Pressure Of Methanol is %.2f", pressure);

                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the MENU? (Y/N): " );
                scanf("%s", &figure);

                    if (figure=='Y' || figure=='y')
                    {
                    system ("CLS");
                goto option;
                    }
                    else if(figure=='N' || figure=='n')
                    {
                    system ("CLS");
                goto menu;
```

```
                }
            }

else if (selection==4)
            {
                    SetColor(7);
            for(i=109;i>=55;i--)
                {
                gotoxy(i,7);
                printf("\xDC");
                }
                for(i=8;i<=36;i++)
                {
                gotoxy(55,i);
                printf("\xDB");
                }
                for(i=56;i<=109;i++)
                {
                gotoxy(i,36);
                printf("\xDC");
                }
                for(i=36;i>=8;i--)
                {
                gotoxy(109,i);
                printf("\xDB");
            }
```

```
for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,21);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,29);
        printf("\xDC");
        }

            temperature=temperatureofmethanol(q,m);
            gotoxy(63,31);SetColor(15);printf("Temperature Of Methanol is
%.2f", temperature);
```

```
                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                scanf("%s", &figure);

                    if (figure=='Y' || figure=='y')
                    {
                    system ("CLS");
                goto option;
                    }
                    else if(figure=='N' || figure=='n')
                    {
                    system ("CLS");
                goto menu;
                }
            }

            else if (selection==5)
            {
                    system("cls");
                    goto menu;
            }

            else

            display_msg();
    system ("CLS");
```

```
                goto menu;

}

else if(option=='A' || option=='a')
{
   SetColor(7);
                for(i=109;i>=55;i--)
                {
                gotoxy(i,7);
                printf("\xDC");
                }
                for(i=8;i<=36;i++)
                {
                gotoxy(55,i);
                printf("\xDB");
                }
                for(i=56;i<=109;i++)
                {
                gotoxy(i,36);
                printf("\xDC");
                }
                for(i=36;i>=8;i--)
                {
                gotoxy(109,i);
                printf("\xDB");
```

```
}
for(i=56;i<=108;i++)
                        {
                        gotoxy(i,32);
                        printf("\xDC");
                        }

SetColor(11);
for (i=98;i>=65;i--)
{
gotoxy(i,10);
printf("\xDB");
                        }
for (i=65;i<=98;i++)
{
gotoxy(i,12);
printf("\xDB");
                        }
                        gotoxy(65,11);SetColor(189);printf("    Air Properties Calculation    ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,16);
                    printf("\xDC");
                        }
```

```
                for (i=14;i<=16;i++)
                {
                        gotoxy(74,i);
                        printf("\xDB");
                }
for (i=74;i<=89;i++)
{
                gotoxy(i,14);
                printf("\xDC");
                }
                for (i=16;i>=15;i--)
{
                gotoxy(89,i);
                printf("\xDB");
                }
                gotoxy(75,15);SetColor(15);printf("  1-Velocity ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,19);
                printf("\xDC");
                }
                for (i=17;i<=19;i++)
                {
                        gotoxy(74,i);
```

```
                    printf("\xDB");
                }
for (i=74;i<=89;i++)
{
                gotoxy(i,17);
                printf("\xDC");
                }
                for (i=19;i>=18;i--)
{
                gotoxy(89,i);
                printf("\xDB");
                }
                gotoxy(75,18);SetColor(15);printf("  2-Density  ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,22);
                printf("\xDC");
                }
                for (i=20;i<=22;i++)
                {
                        gotoxy(74,i);
                        printf("\xDB");
                }
for (i=74;i<=89;i++)
```

```
{
                    gotoxy(i,20);
                    printf("\xDC");
                       }
                       for (i=22;i>=21;i--)
{
                    gotoxy(89,i);
                    printf("\xDB");
                       }
                       gotoxy(75,21);SetColor(15);printf("  3-Pressure ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,25);
                    printf("\xDC");
                       }
                       for (i=23;i<=25;i++)
                       {
                                gotoxy(74,i);
                                printf("\xDB");
                       }
for (i=74;i<=89;i++)
{
                    gotoxy(i,23);
                    printf("\xDC");
```

```
                    }
                    for (i=25;i>=24;i--)
{
                gotoxy(89,i);
                printf("\xDB");
                    }
                    gotoxy(75,24);SetColor(15);printf("4-Temperature");

                    SetColor(15);
for (i=89;i>=74;i--)
{
                gotoxy(i,27);
                printf("\xDB");
                    }
for (i=74;i<=89;i++)
{
                gotoxy(i,29);
                printf("\xDB");
                    }
                    gotoxy(74,28);SetColor(249);printf("   5-Main Menu  ");
                    gotoxy(61,34);SetColor(15);printf("Please enter your selection : ");
                    scanf ("%d" , &selection);
                    system("cls");

if (selection==1)
{
```

```
                SetColor(7);
    for(i=109;i>=55;i--)
        {
        gotoxy(i,7);
        printf("\xDC");
        }
        for(i=8;i<=36;i++)
        {
        gotoxy(55,i);
        printf("\xDB");
        }
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
}
for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
```

```
                for(i=56;i<=108;i++)
                    {
                    gotoxy(i,17);
                    printf("\xDC");
                    }
                for(i=56;i<=108;i++)
                    {
                    gotoxy(i,21);
                    printf("\xDC");
                    }
                for(i=56;i<=108;i++)
                    {
                    gotoxy(i,29);
                    printf("\xDC");
                    }

        velocity=velocityofair(f, d);
        gotoxy(63,31);SetColor(15);printf("Velocity Of Air is %.2f", velocity);

                    gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the MENU? (Y/N): " );
                    scanf("%s", &figure);

                        if (figure=='Y' || figure=='y')
                        {
                        system ("CLS");
```

```
    goto option;
        }
        else if(figure=='N' || figure=='n')
        {
        system ("CLS");
    goto menu;
    }
}

else if (selection==2)
{
        SetColor(7);
for(i=109;i>=55;i--)
    {
    gotoxy(i,7);
    printf("\xDC");
    }
    for(i=8;i<=36;i++)
    {
    gotoxy(55,i);
    printf("\xDB");
    }
    for(i=56;i<=109;i++)
    {
    gotoxy(i,36);
    printf("\xDC");
```

```
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
    }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,21);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,29);
        printf("\xDC");
        }
```

```
                density=densityofair(m,r,h);
                gotoxy(63,31);SetColor(15);printf("Density Of Air is %.2f",
density);

            gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
            scanf("%s", &figure);

                if (figure=='Y' || figure=='y')
                {
                system ("CLS");
            goto option;
                }
                else if(figure=='N' || figure=='n')
                {
                system ("CLS");
            goto menu;
            }
        }

        else if (selection==3)
        {
                SetColor(7);
        for(i=109;i>=55;i--)
            {
```

```
        gotoxy(i,7);
        printf("\xDC");
        }
        for(i=8;i<=36;i++)
        {
        gotoxy(55,i);
        printf("\xDB");
        }
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
}
for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
```

```
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,21);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,29);
                printf("\xDC");
                }

                    pressure=pressureofair(p,h);
                    gotoxy(63,31);SetColor(15);printf("Pressure Of Air is %.2f",
pressure);

                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                scanf("%s", &figure);

                    if (figure=='Y' || figure=='y')
                    {
                    system ("CLS");
                goto option;
                    }
```

```
                else if(figure=='N' || figure=='n')
                {
                system ("CLS");
            goto menu;
            }
        }

else if (selection==4)
        {
                SetColor(7);
        for(i=109;i>=55;i--)
            {
            gotoxy(i,7);
            printf("\xDC");
            }
            for(i=8;i<=36;i++)
            {
            gotoxy(55,i);
            printf("\xDB");
            }
            for(i=56;i<=109;i++)
            {
            gotoxy(i,36);
            printf("\xDC");
            }
            for(i=36;i>=8;i--)
```

```
        {
        gotoxy(109,i);
        printf("\xDB");
}
for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,21);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,29);
        printf("\xDC");
        }

              temperature=temperatureofair(q,m);
```

```
                gotoxy(63,31);SetColor(15);printf("Temperature Of Air is %.2f",
temperature);


                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                scanf("%s", &figure);


                if (figure=='Y' || figure=='y')
                {
                system ("CLS");
                goto option;
                }
                else if(figure=='N' || figure=='n')
                {
                system ("CLS");
                goto menu;
                }
            }


            else if (selection==5)
            {
                system("cls");
                goto menu;
            }


            else
```

```
                        display_msg();
    system ("CLS");
                        goto menu;

}

else if(option=='S' || option=='s')
{
    SetColor(7);
                    for(i=109;i>=55;i--)
                        {
                        gotoxy(i,7);
                        printf("\xDC");
                        }
                        for(i=8;i<=36;i++)
                        {
                        gotoxy(55,i);
                        printf("\xDB");
                        }
                        for(i=56;i<=109;i++)
                        {
                        gotoxy(i,36);
                        printf("\xDC");
                        }
                        for(i=36;i>=8;i--)
```

```
                    {
                    gotoxy(109,i);
                    printf("\xDB");
}
for(i=56;i<=108;i++)
                    {
                    gotoxy(i,32);
                    printf("\xDC");
                    }

SetColor(11);
for (i=98;i>=65;i--)
{
gotoxy(i,10);
printf("\xDB");
                    }
for (i=65;i<=98;i++)
{
gotoxy(i,12);
printf("\xDB");
                    }
                    gotoxy(65,11);SetColor(189);printf("   Steam Properties Calculation   ");

SetColor(7);
for (i=89;i>=74;i--)
{
```

```
    gotoxy(i,16);
                    printf("\xDC");
                       }
                       for (i=14;i<=16;i++)
                       {
                                gotoxy(74,i);
                                printf("\xDB");
                       }
for (i=74;i<=89;i++)
{
                    gotoxy(i,14);
                    printf("\xDC");
                       }
                       for (i=16;i>=15;i--)
{
                    gotoxy(89,i);
                    printf("\xDB");
                       }
                       gotoxy(75,15);SetColor(15);printf("  1-Velocity ");

SetColor(7);
for (i=89;i>=74;i--)
{
    gotoxy(i,19);
                    printf("\xDC");
                       }
```

```
                for (i=17;i<=19;i++)
                {
                        gotoxy(74,i);
                        printf("\xDB");
                }
for (i=74;i<=89;i++)
{
                gotoxy(i,17);
                printf("\xDC");
                }
                for (i=19;i>=18;i--)
{
                gotoxy(89,i);
                printf("\xDB");
                }
                gotoxy(75,18);SetColor(15);printf("  2-Density  ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,22);
                printf("\xDC");
                }
                for (i=20;i<=22;i++)
                {
                        gotoxy(74,i);
```

```
                printf("\xDB");
            }
for (i=74;i<=89;i++)
{
            gotoxy(i,20);
            printf("\xDC");
            }
            for (i=22;i>=21;i--)
{
            gotoxy(89,i);
            printf("\xDB");
            }
            gotoxy(75,21);SetColor(15);printf("  3-Pressure ");

SetColor(7);
for (i=89;i>=74;i--)
{
   gotoxy(i,25);
            printf("\xDC");
            }
            for (i=23;i<=25;i++)
            {
                gotoxy(74,i);
                printf("\xDB");
            }
for (i=74;i<=89;i++)
```

```
{
                    gotoxy(i,23);
                    printf("\xDC");
                       }
                       for (i=25;i>=24;i--)
{
                    gotoxy(89,i);
                    printf("\xDB");
                       }
                       gotoxy(75,24);SetColor(15);printf("4-Temperature");

                       SetColor(15);
for (i=89;i>=74;i--)
{
                    gotoxy(i,27);
                    printf("\xDB");
                       }
for (i=74;i<=89;i++)
{
                    gotoxy(i,29);
                    printf("\xDB");
                       }
                       gotoxy(74,28);SetColor(249);printf("   5-Main Menu  ");
                       gotoxy(61,34);SetColor(15);printf("Please enter your selection : ");
                       scanf ("%d" , &selection);
                       system("cls");
```

```
if (selection==1)
{
                                SetColor(7);
                        for(i=109;i>=55;i--)
                            {
                            gotoxy(i,7);
                            printf("\xDC");
                            }
                            for(i=8;i<=36;i++)
                            {
                            gotoxy(55,i);
                            printf("\xDB");
                            }
                            for(i=56;i<=109;i++)
                            {
                            gotoxy(i,36);
                            printf("\xDC");
                            }
                            for(i=36;i>=8;i--)
                            {
                            gotoxy(109,i);
                            printf("\xDB");
                        }
                        for(i=56;i<=108;i++)
                            {
```

```
                gotoxy(i,13);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,17);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,21);
                printf("\xDC");
                }
            for(i=56;i<=108;i++)
                {
                gotoxy(i,29);
                printf("\xDC");
                }

    velocity=velocityofsteam(f, d);
    gotoxy(63,31);SetColor(15);printf("Velocity Of Steam is %.2f", velocity);

                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the MENU? (Y/N): " );
                scanf("%s", &figure);
```

```
            if (figure=='Y' || figure=='y')
            {
            system ("CLS");
    goto option;
            }
            else if(figure=='N' || figure=='n')
            {
            system ("CLS");
    goto menu;
    }
}

else if (selection==2)
{
            SetColor(7);
for(i=109;i>=55;i--)
    {
    gotoxy(i,7);
    printf("\xDC");
    }
    for(i=8;i<=36;i++)
    {
    gotoxy(55,i);
    printf("\xDB");
    }
    for(i=56;i<=109;i++)
```

```
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
}
for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
        gotoxy(i,21);
        printf("\xDC");
        }
for(i=56;i<=108;i++)
        {
```

```
                gotoxy(i,29);
                printf("\xDC");
                }

                    density=densityofsteam(m,r,h);
                    gotoxy(63,31);SetColor(15);printf("Density Of Steam is %.2f",
density);

                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                scanf("%s", &figure);

                    if (figure=='Y' || figure=='y')
                    {
                    system ("CLS");
                goto option;
                    }
                    else if(figure=='N' || figure=='n')
                    {
                    system ("CLS");
                goto menu;
                }
            }

            else if (selection==3)
            {
```

```
                SetColor(7);
    for(i=109;i>=55;i--)
        {
        gotoxy(i,7);
        printf("\xDC");
        }
        for(i=8;i<=36;i++)
        {
        gotoxy(55,i);
        printf("\xDB");
        }
        for(i=56;i<=109;i++)
        {
        gotoxy(i,36);
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
}
for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
```

```
                for(i=56;i<=108;i++)
                    {
                    gotoxy(i,17);
                    printf("\xDC");
                    }
                for(i=56;i<=108;i++)
                    {
                    gotoxy(i,21);
                    printf("\xDC");
                    }
                for(i=56;i<=108;i++)
                    {
                    gotoxy(i,29);
                    printf("\xDC");
                    }

                        pressure=pressureofsteam(p,h);
                        gotoxy(63,31);SetColor(15);printf("Pressure Of Steam is %.2f",
pressure);

                    gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the
MENU? (Y/N): " );
                    scanf("%s", &figure);

                        if (figure=='Y' || figure=='y')
                        {
```

```
                    system ("CLS");
                goto option;
                    }
                    else if(figure=='N' || figure=='n')
                    {
                    system ("CLS");
                goto menu;
                }
            }

else if (selection==4)
                {
                    SetColor(7);
                for(i=109;i>=55;i--)
                {
                gotoxy(i,7);
                printf("\xDC");
                }
                for(i=8;i<=36;i++)
                {
                gotoxy(55,i);
                printf("\xDB");
                }
                for(i=56;i<=109;i++)
                {
                gotoxy(i,36);
```

```
        printf("\xDC");
        }
        for(i=36;i>=8;i--)
        {
        gotoxy(109,i);
        printf("\xDB");
    }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,13);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,17);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,21);
        printf("\xDC");
        }
    for(i=56;i<=108;i++)
        {
        gotoxy(i,29);
        printf("\xDC");
```

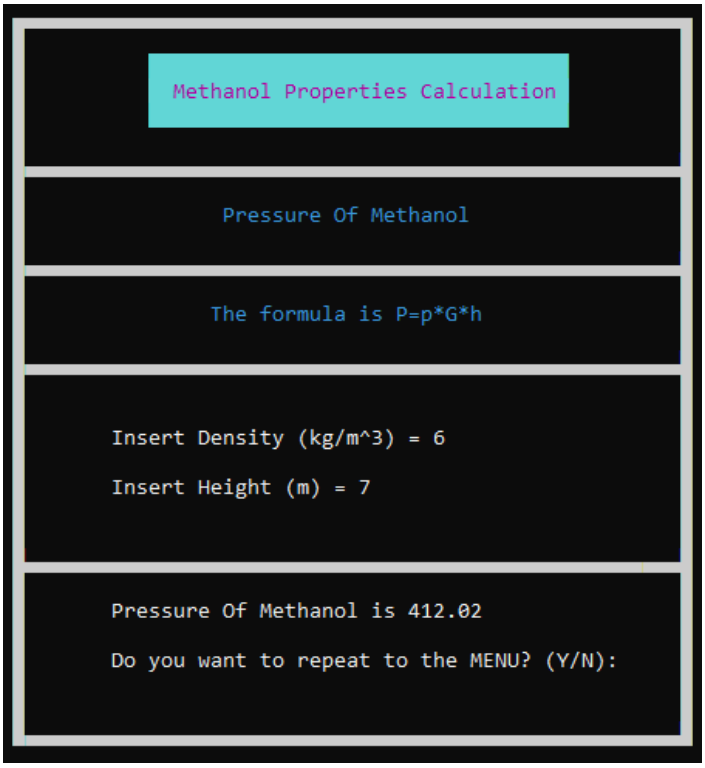
```
                }

                    temperature=temperatureofsteam(q,m);
                    gotoxy(63,31);SetColor(15);printf("Temperature Of Steam is %.2f", temperature);

                gotoxy(63,33);SetColor(15);printf ("Do you want to repeat to the MENU? (Y/N): " );
                scanf("%s", &figure);

                    if (figure=='Y' || figure=='y')
                    {
                    system ("CLS");
                goto option;
                    }
                    else if(figure=='N' || figure=='n')
                    {
                    system ("CLS");
                goto menu;
                }
            }

            else if (selection==5)
            {
                    system("cls");
                    goto menu;
```

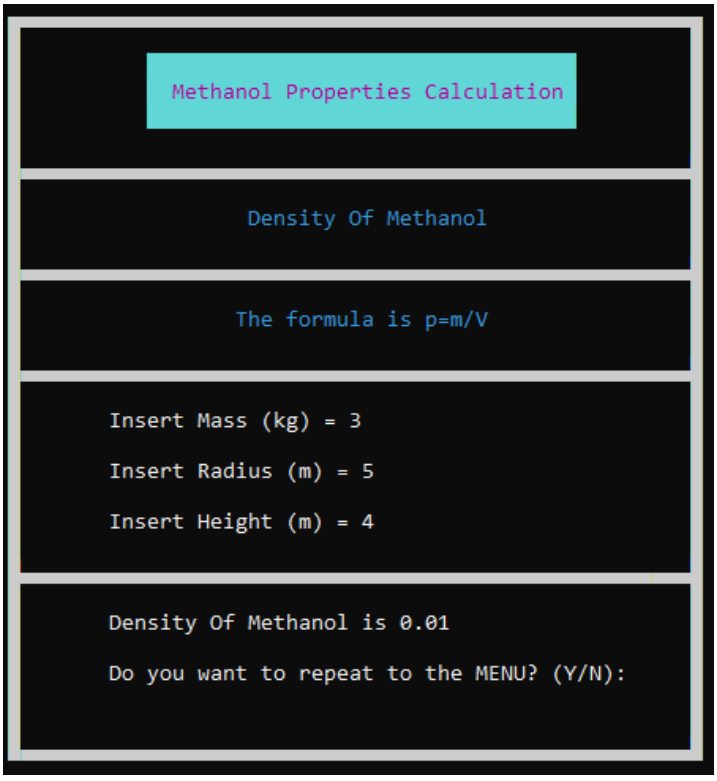
```
                        }


                        else


    display_msg();
    system ("CLS");
                        goto menu;


}


else if (option=='E' || option=='e')
{
                        Exit:
                        SetColor(1);
                        for (i=108;i>=56;i--)
                        {
                        gotoxy(i,7);
                        printf("\xDB");
                        }
                        for(i=7;i<=36;i++)
                        {
                        gotoxy(55,i);
                        printf("\xDB");
                        }
                        for(i=56;i<=109;i++)
                        {
```

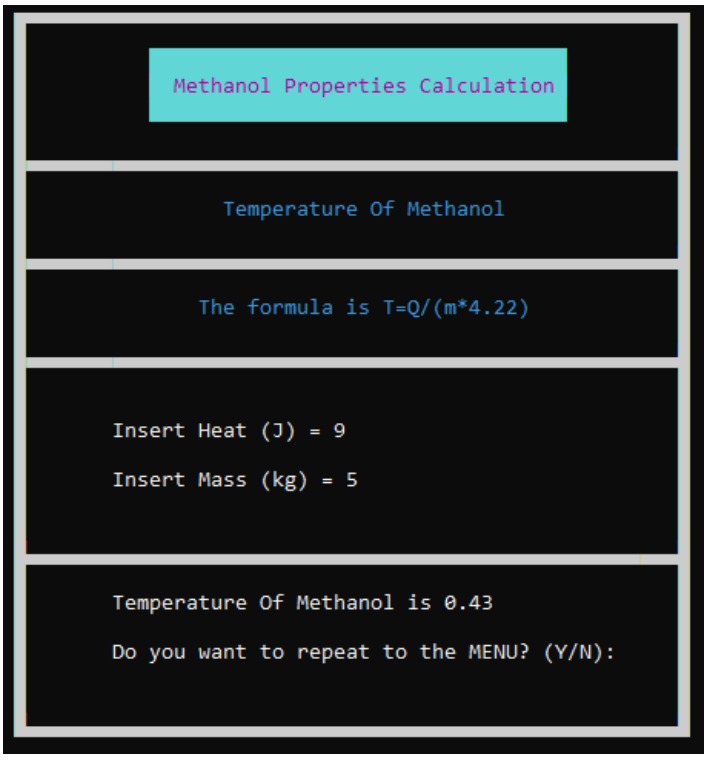
```
                    gotoxy(i,36);
                    printf("\xDB");
                    }
                    for(i=36;i>=7;i--)
                    {
                    gotoxy(109,i);
                    printf("\xDB");
                    }
                    SetColor(14);
                    gotoxy(68,20);
                    for(i=0;i<=28;i++)
                    {
                    printf("%c",load8[i]);
                    Sleep(50);
                    }
                    gotoxy(62,22);
                    for(i=0;i<=41;i++)
                    {
                    printf("%c",load9[i]);
                    Sleep(50);
                    }
    }

    return 0;
}
```

- SAMPLE OF OUTPUT

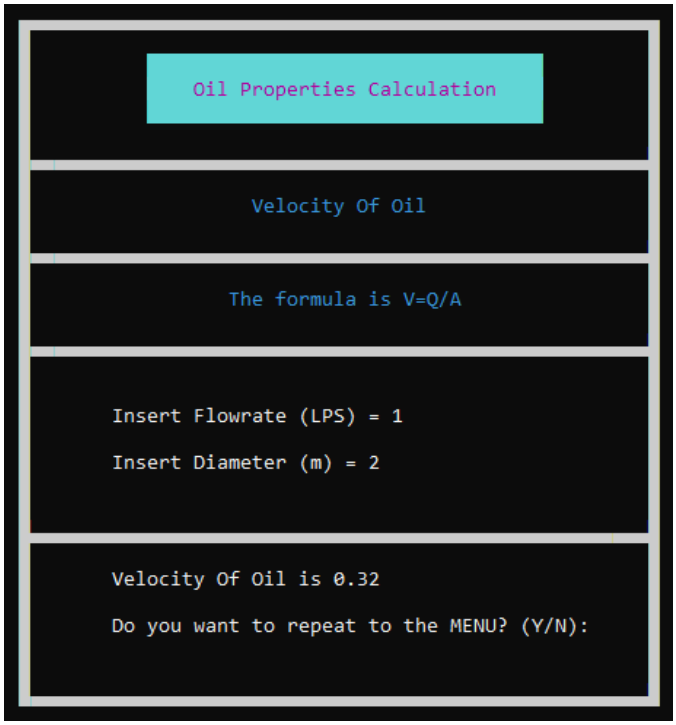
1) Methanol Properties

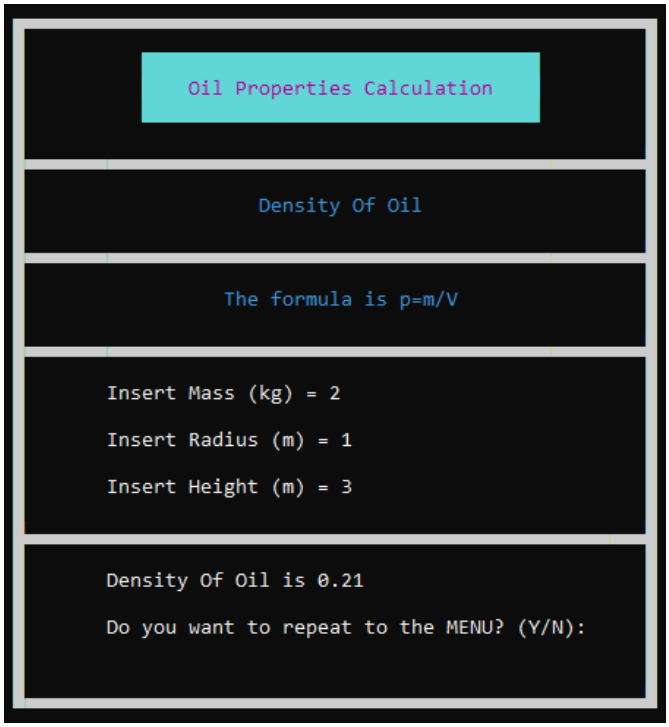


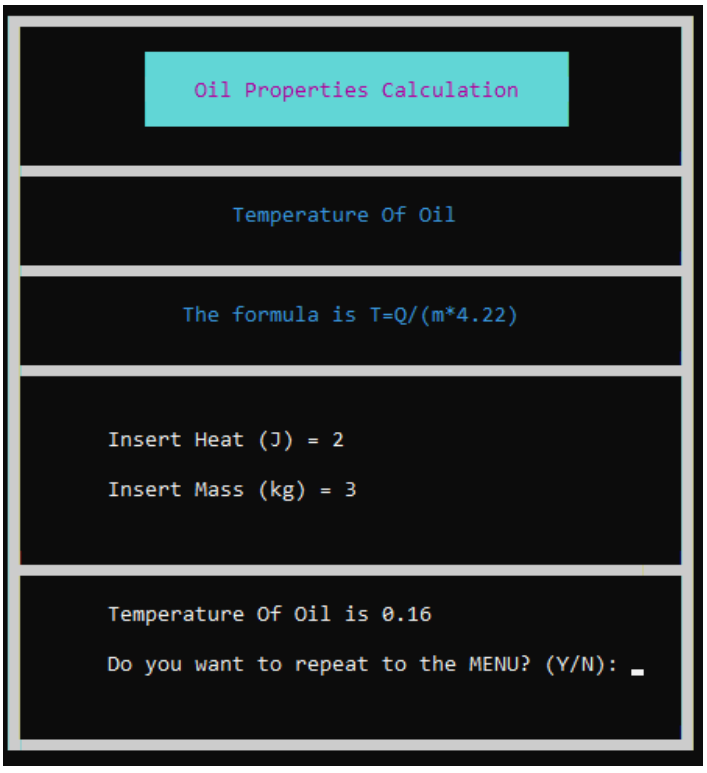




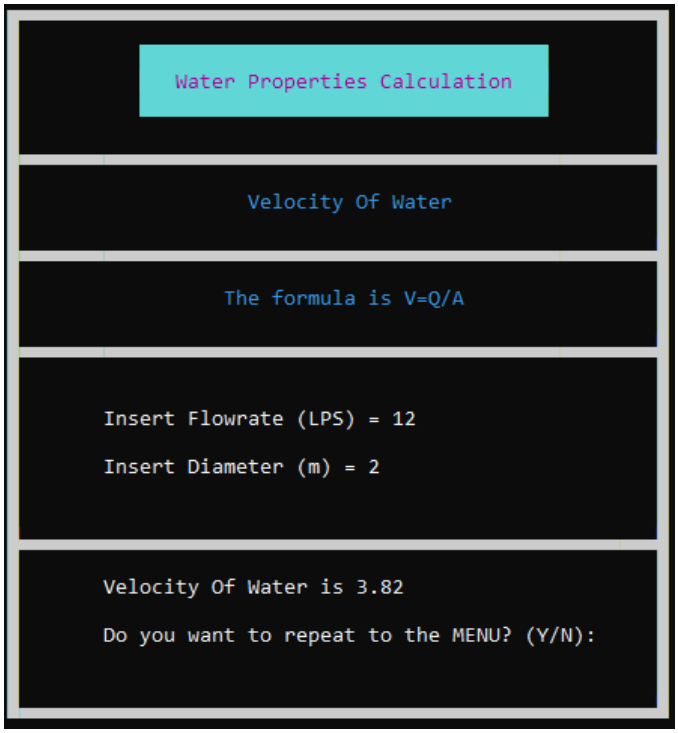
2) Oil Properties

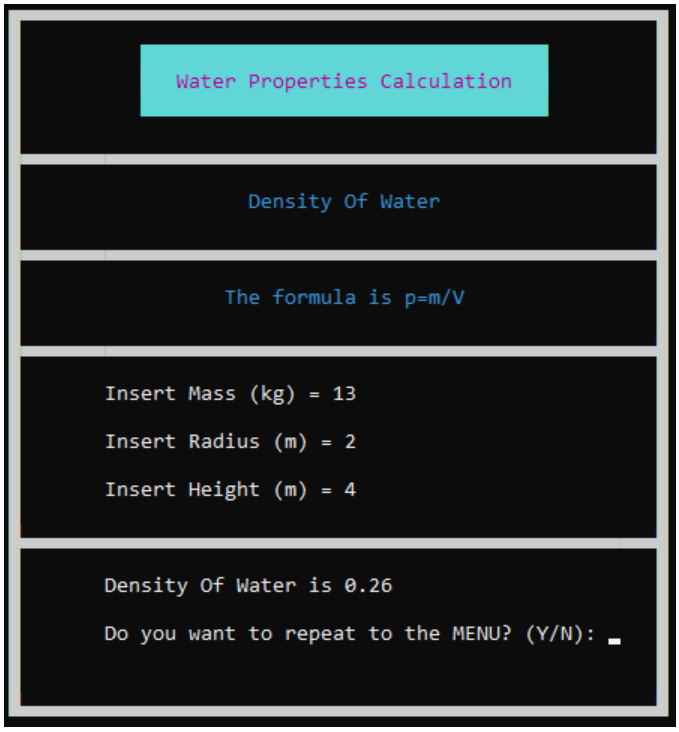


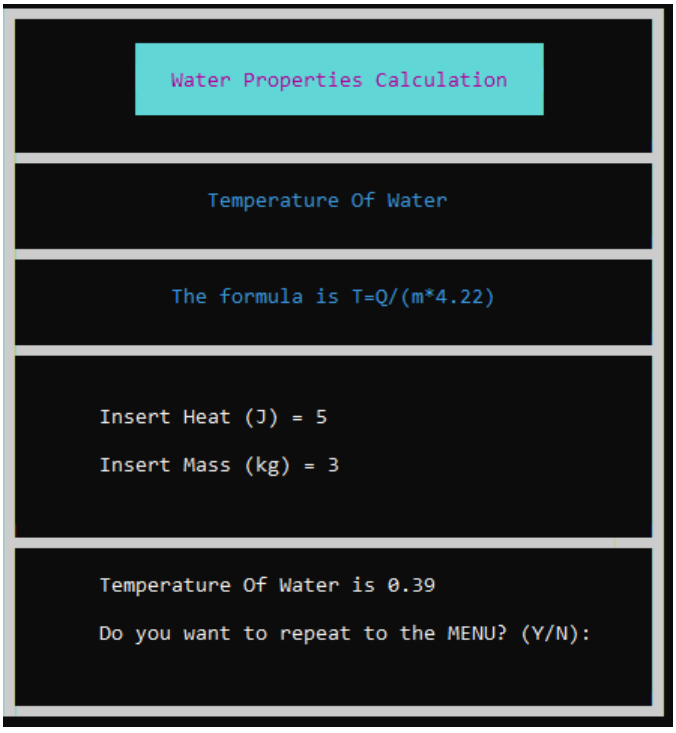




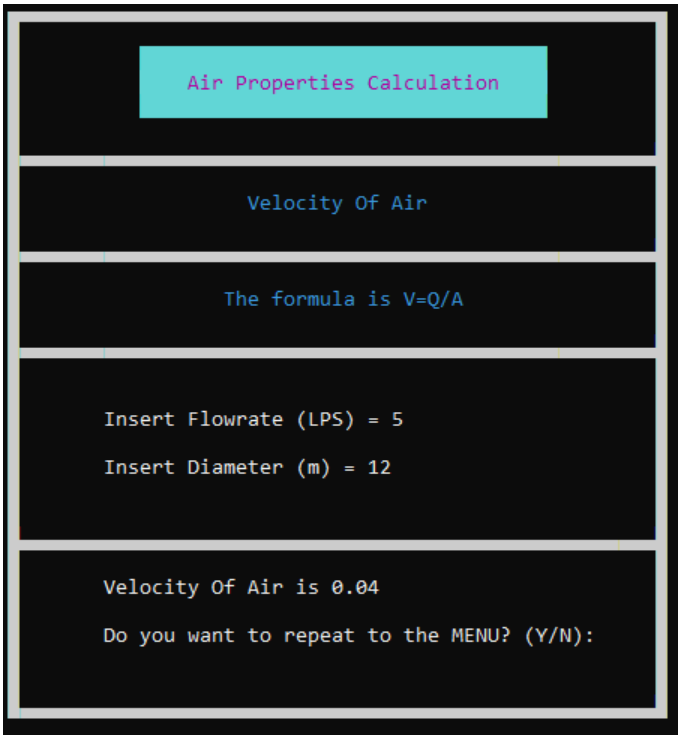
3) Water Properties

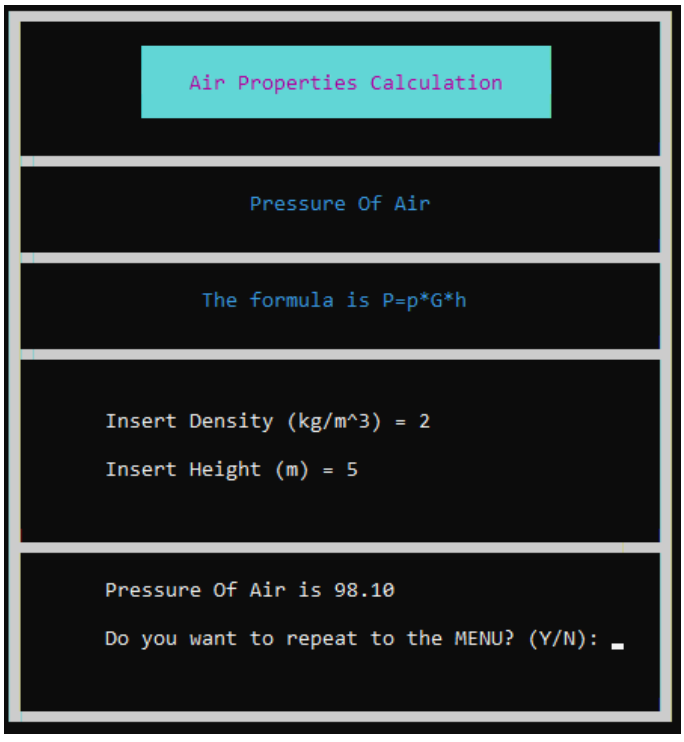


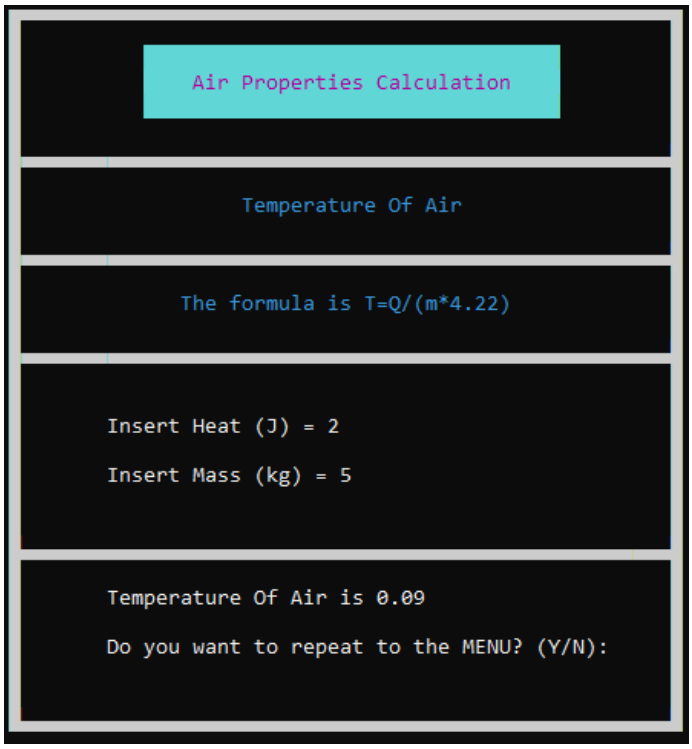




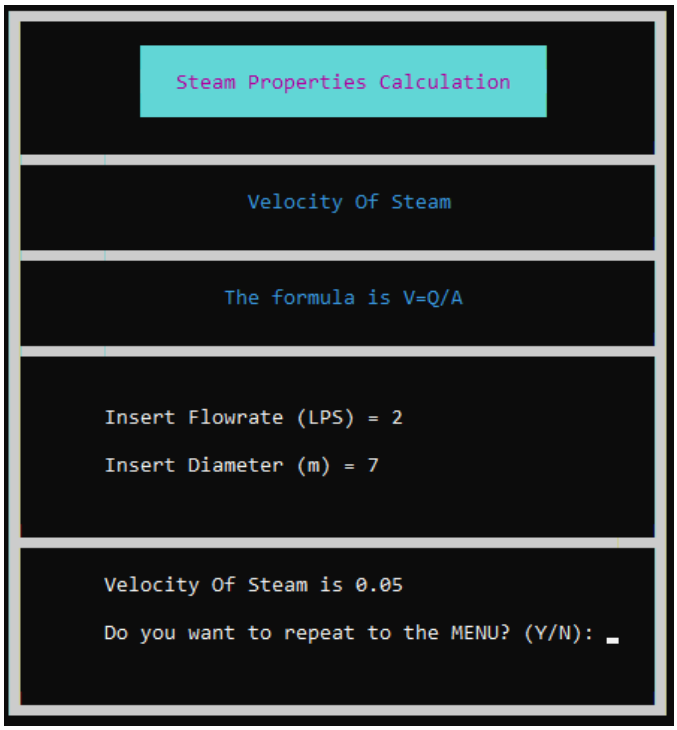
4) Air Properties

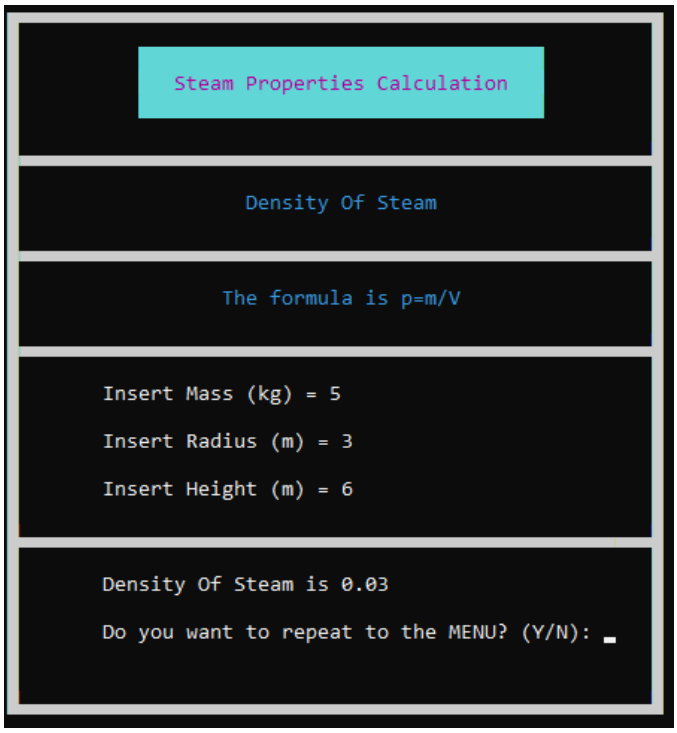


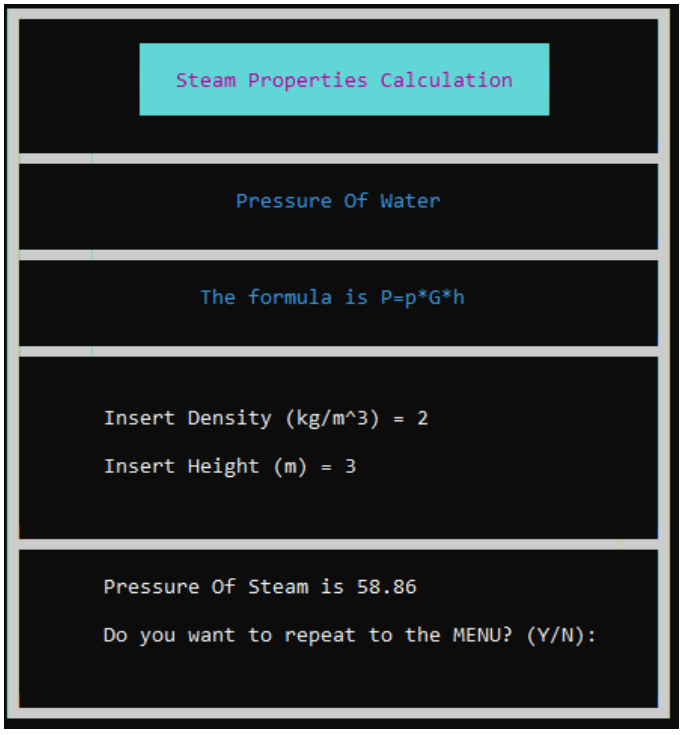


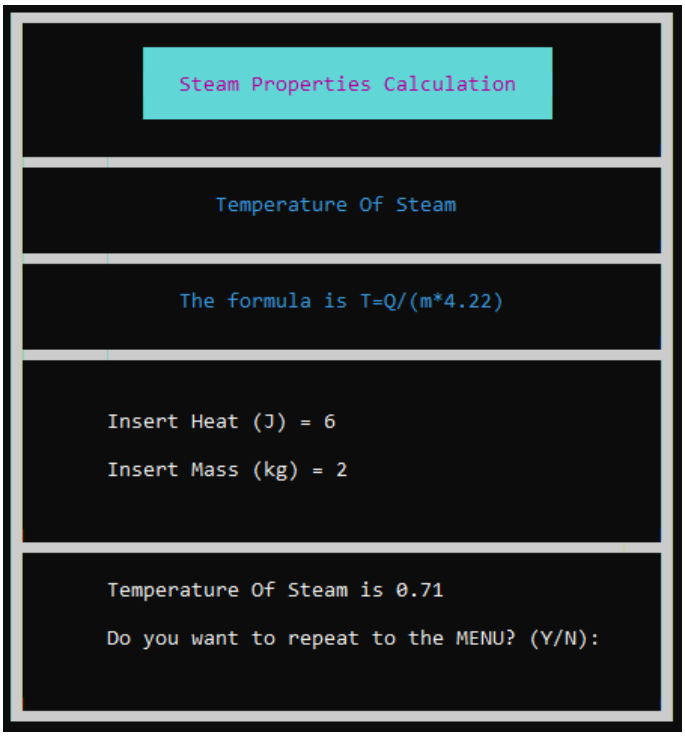


5) Steam Properties

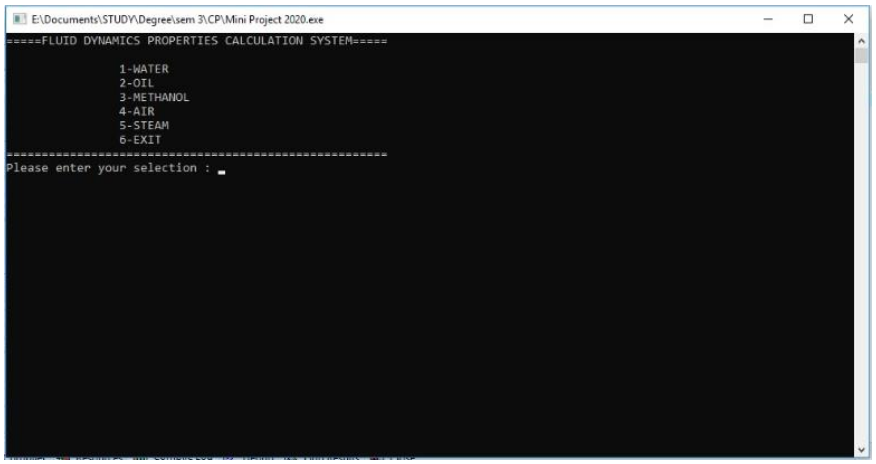






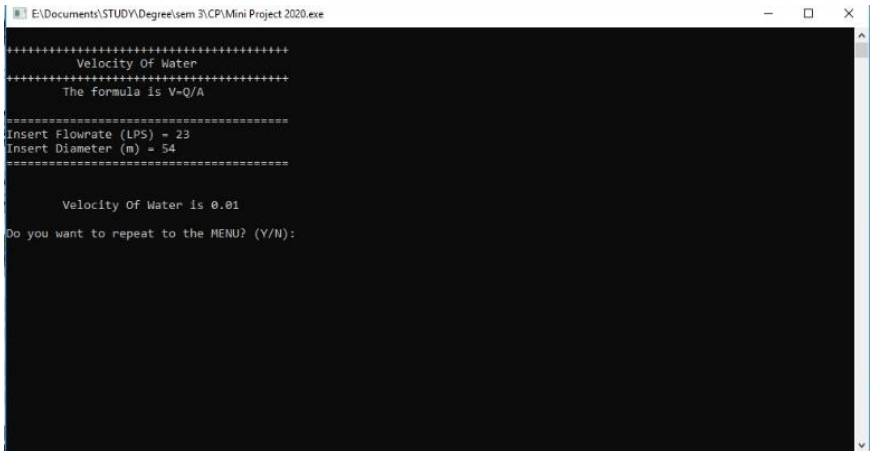


- RESULT AND DISSCUSSION



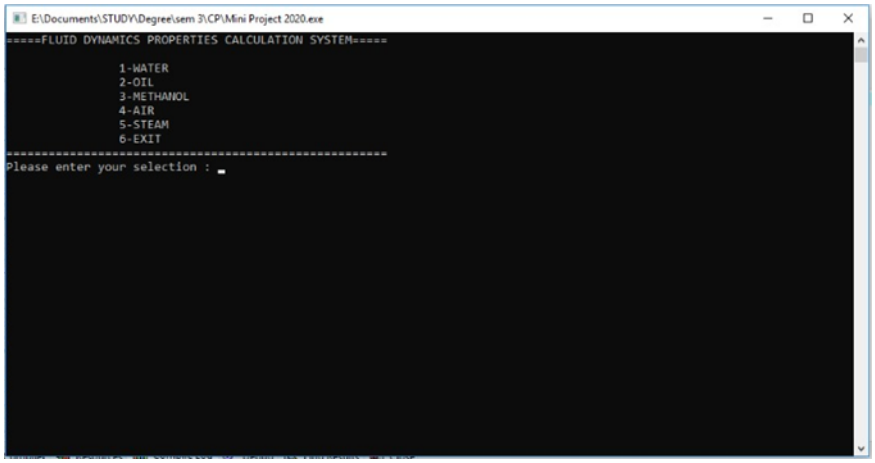
The program show the option of fluid dynamic properties calculation system. The program prompt user to select which type of fluid that he want to calculate.

If user select water, the program will show the selection of properties calculation or return to main program.

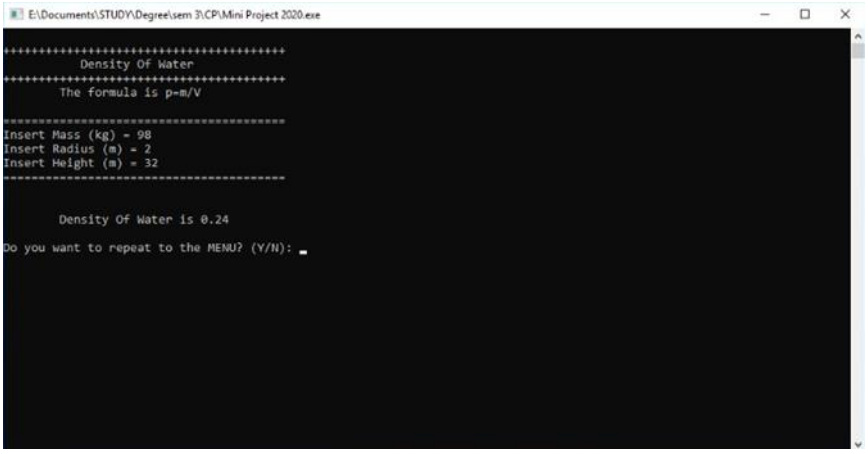


If user select the first option which is velocity of water. The program will show the formula of velocity and it will prompt user to include the flow rate of water and the diameter. Then, the program will show the velocity of water. After that, the program will ask if the user want to repeat to the menu.

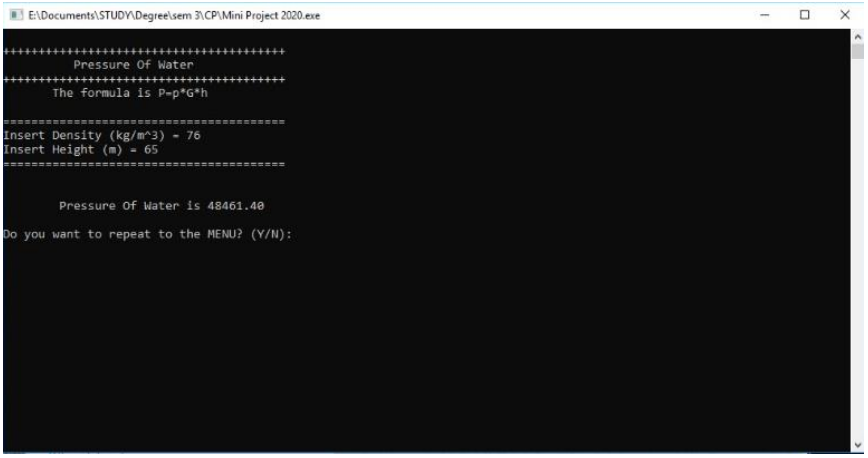
If the user choose to repeat to the menu which is either they select “ Y” or “y”, the program will back to water properties calculation section. This will give advantage to the user if they want to calculate the different property of water



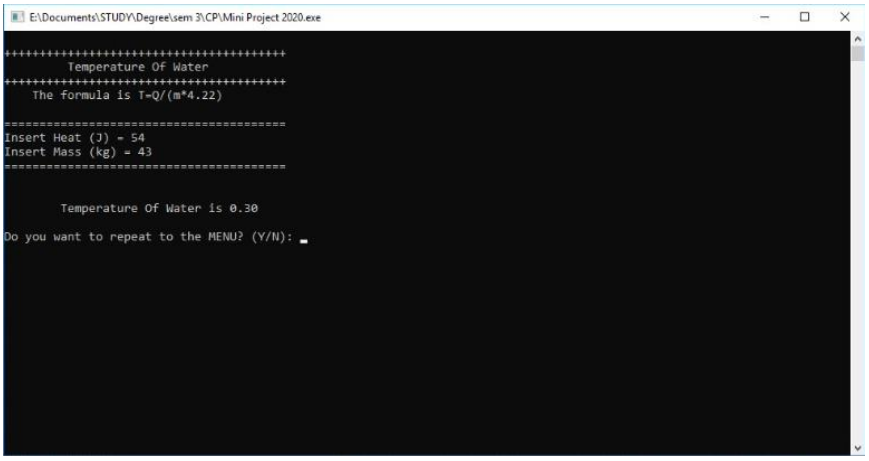
If the user do not choose to repeat to the menu which is either they select " N" or "n", the program will back to main menu. This will give the user to choose the different type of fluid.



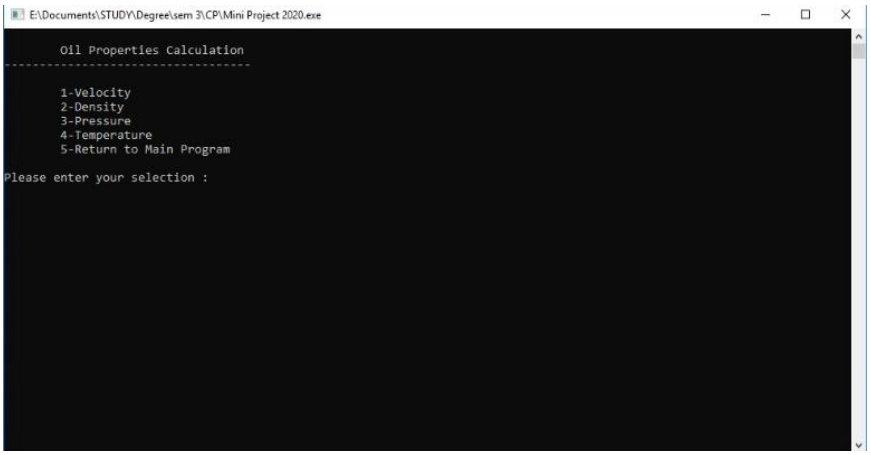
Calculation for density of water



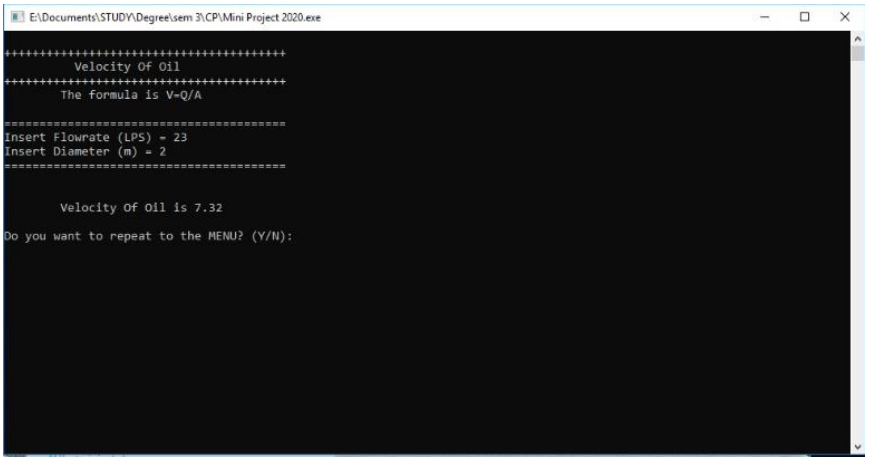
Calculation for pressure of water



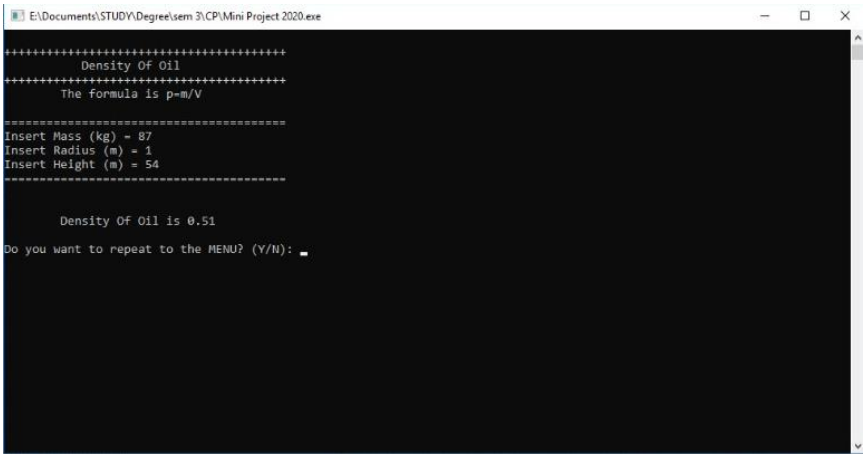
Calculation for temperature of water



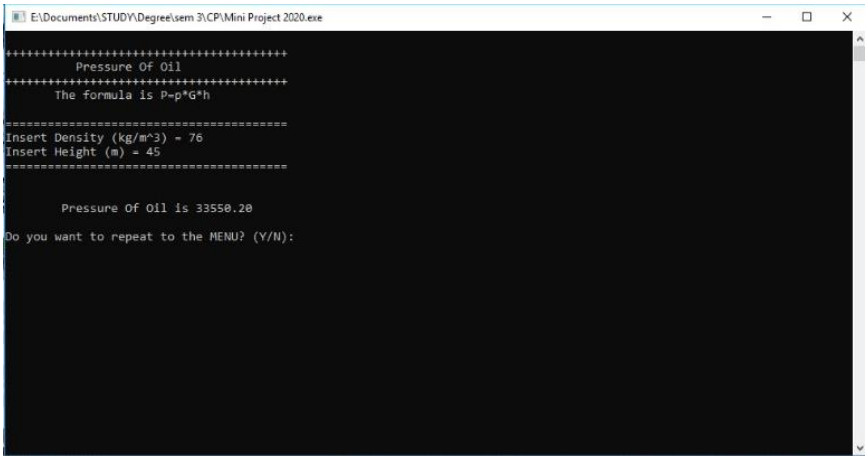
Oil properties calculation



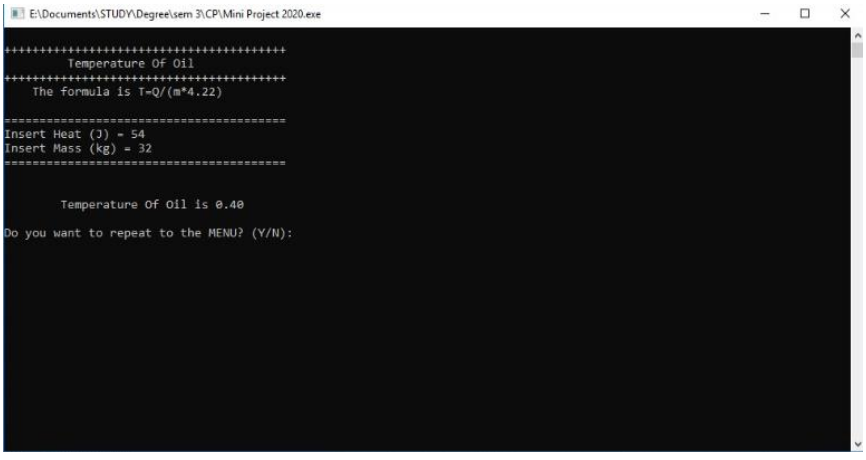
Calculation for velocity of oil



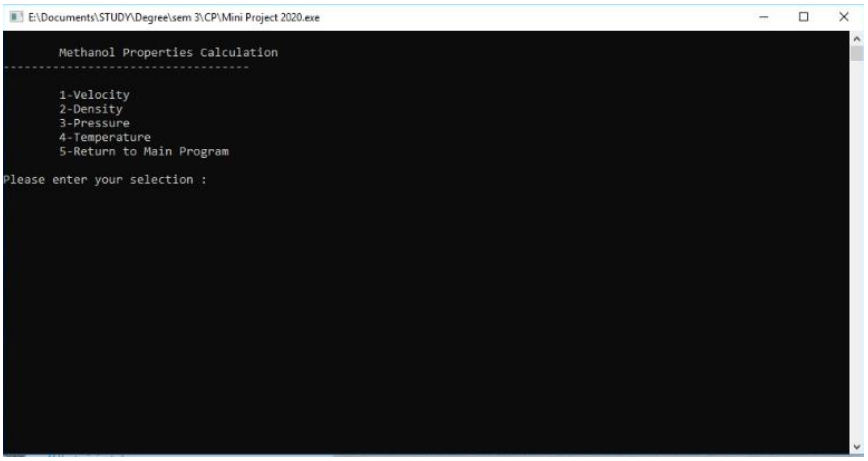
Calculation for density of oil



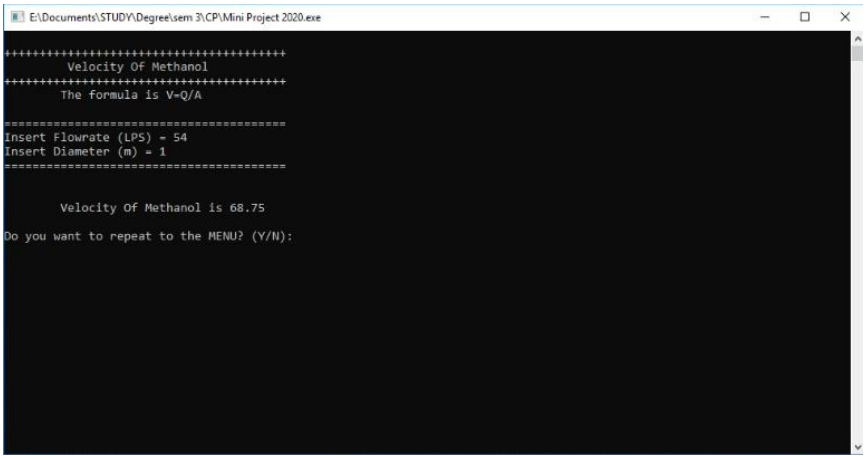
Calculation for pressure of oil



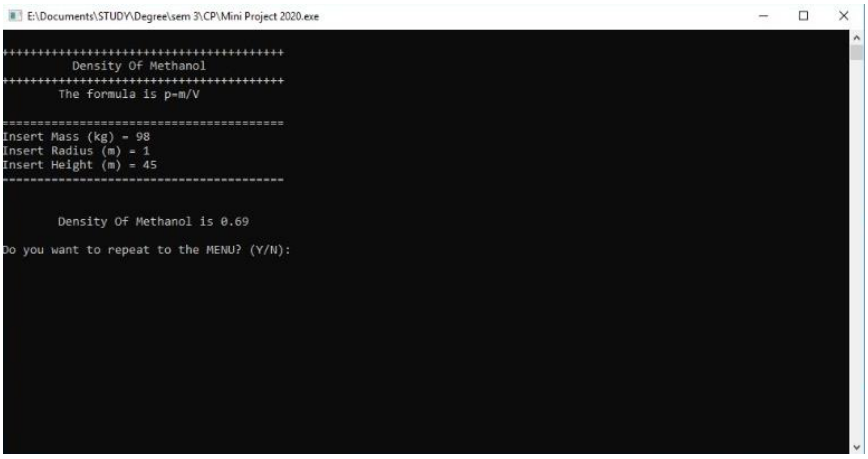
Calculation for temperature of oil



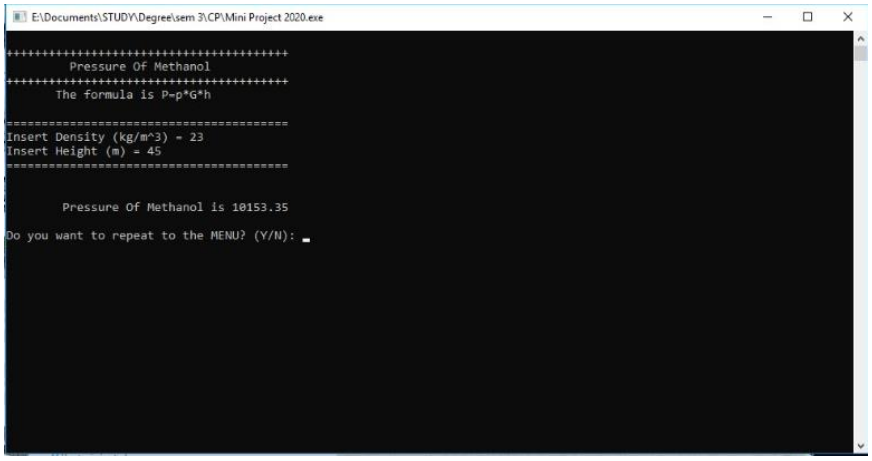
Methanol properties calculation



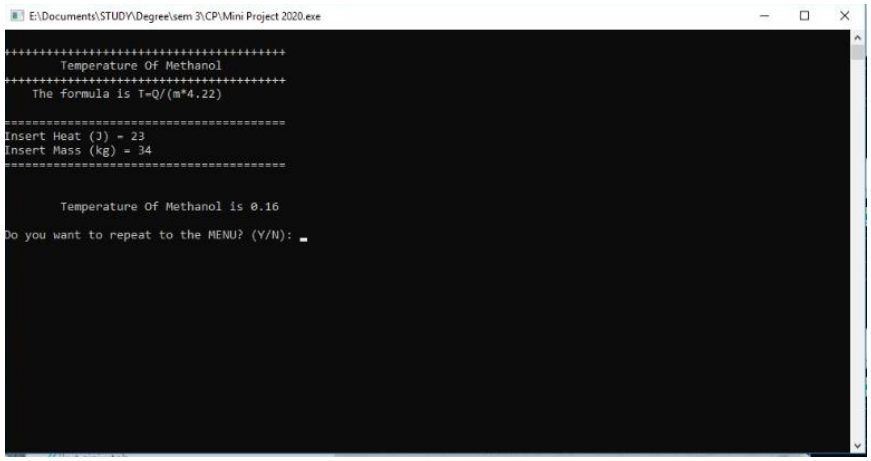
Calculation for velocity of methanol



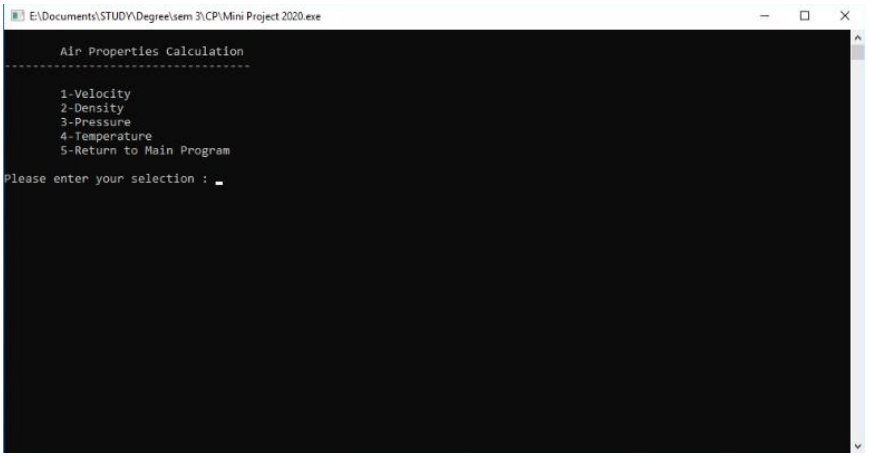
Calculation for density of methanol



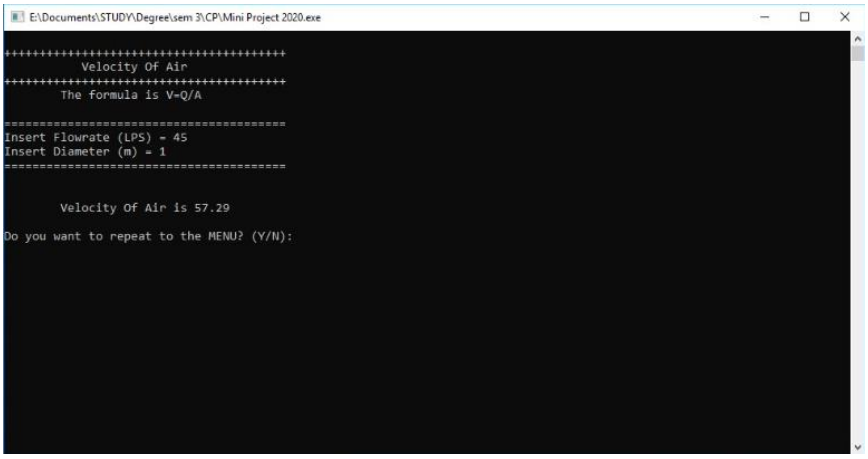
Calculation for pressure of methanol



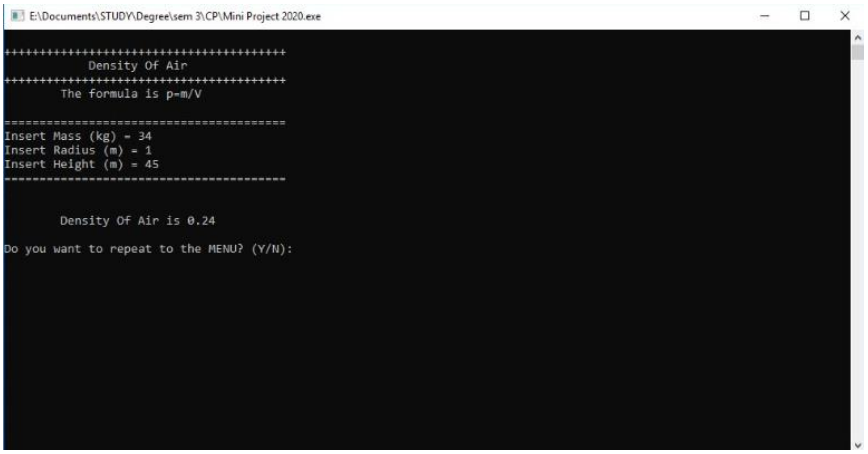
Calculation for temperature of methanol



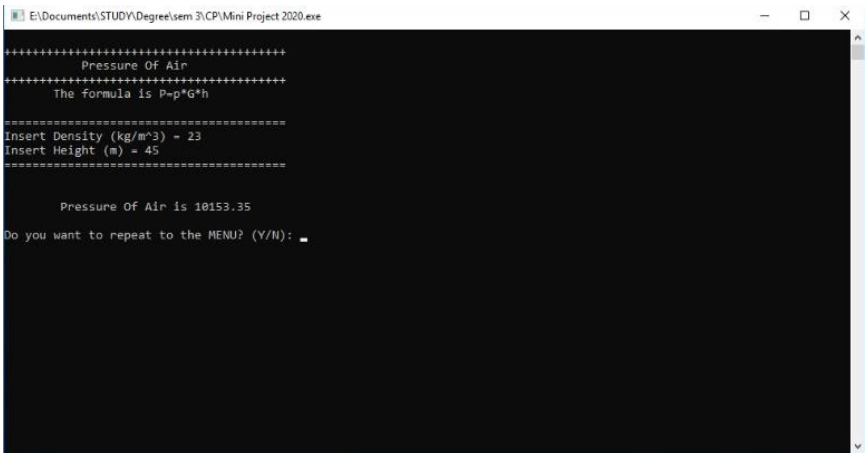
Air properties calculation



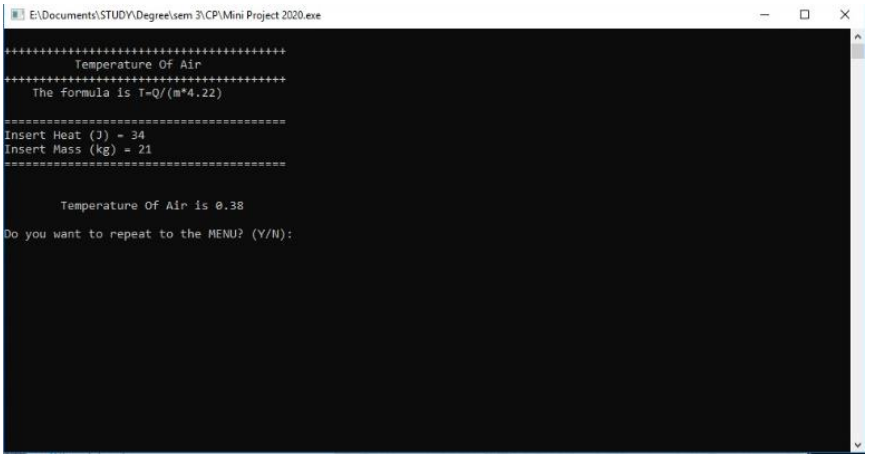
Calculation for velocity of air



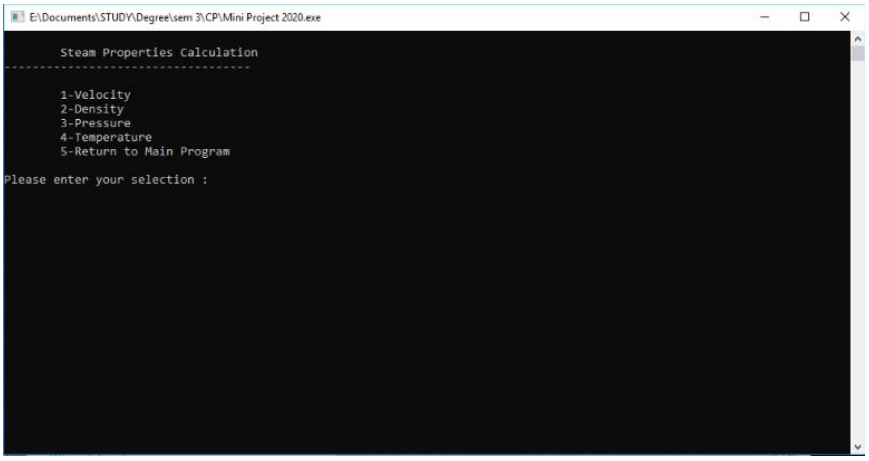
Calculation for density of air



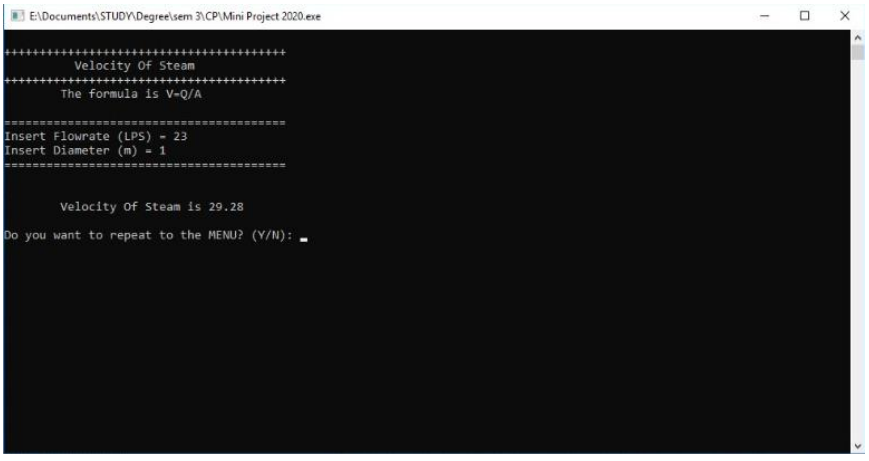
Calculation for pressure of air



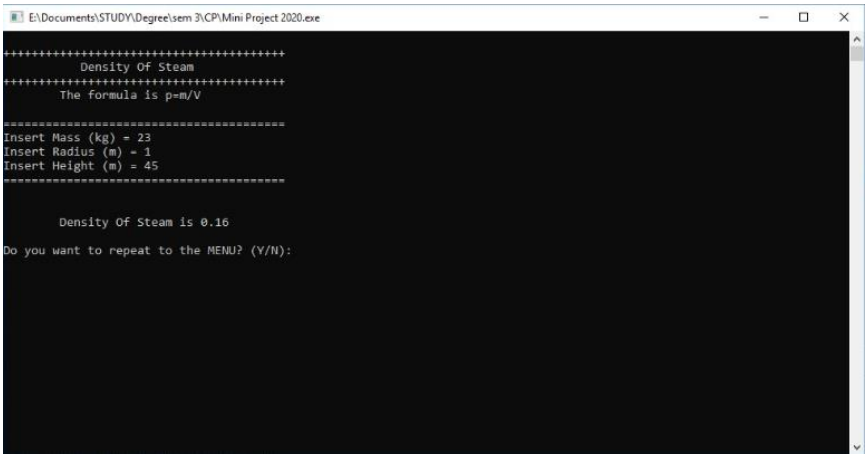
Calculation for temperature of air



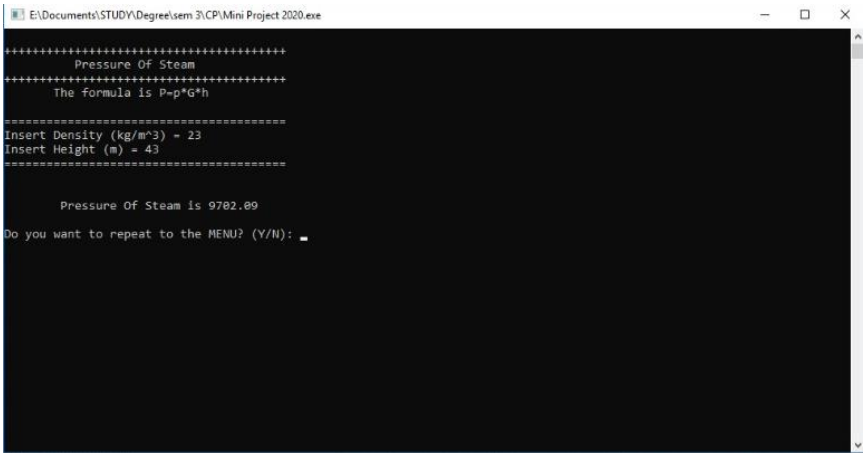
Steam properties calculation



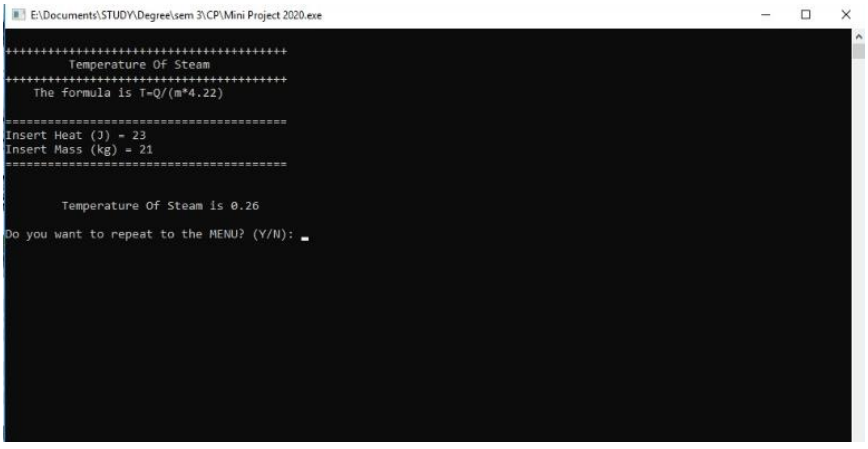
Calculation for velocity of steam



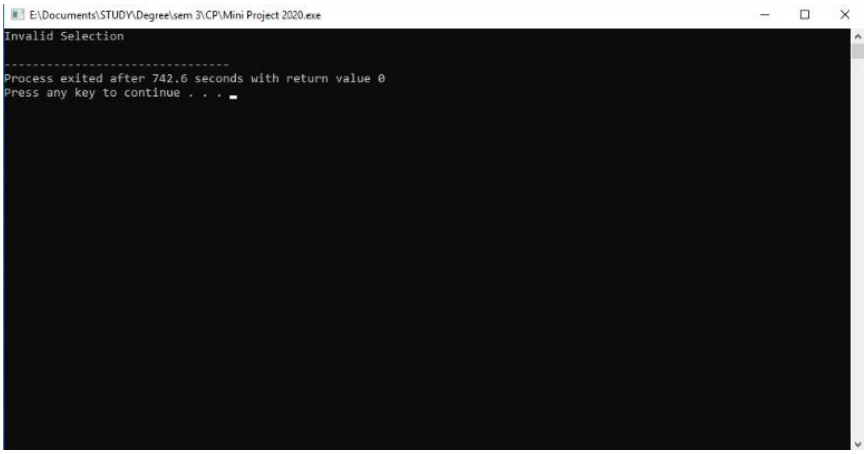
Calculation for density of steam



Calculation for pressure of steam



Calculation for temperature of steam



If user select the 6th option in the main menu, the program will print invalid selection.

COMPARISON BETWEEN OUTPUT GENERATE BY PROGRAM WITH MANUAL CALCULATION:

Type of fluid	Type of calculation	formula	Input	Result by program	Result by manual calculation
Water	Velocity	V=f/((PI*d*d)/4)	Flow rate = 23 Diameter = 54	0.01	0.01
	Density	*p*=m/(PI*r*r*h)	Mass = 98 Radius = 2 Height = 32	0.24	0.24
	Pressure	P=*p**Gravity*height	Density = 76 Height = 65	48461.40	48461.40
	Temperature	T=heat/(mass*4.22)	Heat = 54 Mass = 43	0.30	0.30
Oil	Velocity	V=f/((PI*d*d)/4)	Flow rate = 23 Diameter = 2	7.32	7.32
	Density	*p*=m/(PI*r*r*h)	Mass = 87 Radius = 1 Height = 54	0.51	0.51
	Pressure	P=*p**Gravity*height	Density = 76 Height = 45	33550.20	33550.20
	Temperature	T=heat/(mass*4.22)	Heat = 54 Mass = 32	0.40	0.40
Methanol	Velocity	V=f/((PI*d*d)/4)	Flow rate = 54 Diameter = 1	68.75	68.75
	Density	*p*=m/(PI*r*r*h)	Mass = 98 Radius = 1 Height = 45	0.69	0.69
	Pressure	P=*p**Gravity*height	Density = 23 Height = 45	10153.35	10153.35
	Temperature	T=heat/(mass*4.22)	Heat = 23 Mass = 34	0.16	0.16
Air	Velocity	V=f/((PI*d*d)/4)	Flow rate = 45 Diameter = 1	57.29	57.29
	Density	*p*=m/(PI*r*r*h)	Mass = 34	0.24	0.24

			Radius = 1 Height = 45		
	Pressure	P=*p**Gravity*height	Density = 23 Height = 45	10153.35	10153.35
	Temperature	T=heat/(mass*4.22)	Heat = 34 Mass =21	0.38	0.38
Steam	Velocity	V=f/((PI*d*d)/4)	Flow rate = 23 Diameter = 1	29.28	29.28
	Density	*p*=m/(PI*r*r*h)	Mass = 23 Radius =1 Height = 45	0.16	0.16
	Pressure	P=*p**Gravity*height	Density = 23 Height = 43	9702.09	9702.09
	Temperature	T=heat/(mass*4.22)	Heat = 23 Mass =21	0.26	0.26

Based on the comparison result generate by program between manual calculation is same. So, that mean the accuracy of program is 100%.

- CONCLUSION

Calculation is a very important part in researching. Almost everything in our life use calculation. Some of those calculations are complicated and human might do some careless mistake. Due to those careless mistake, most of the project cannot be completed. But, with this calculation programme, it will help user to calculate easier and accurately. Moreover, the calculation programme helps to speed up the one's calculation accurately without worrying about any silly mistake or careless mistake.