GNG 1106
Fundamentals of Engineering Computation

Lab 1 – Fall 2016
Report

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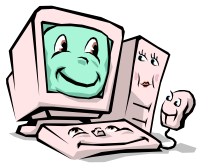


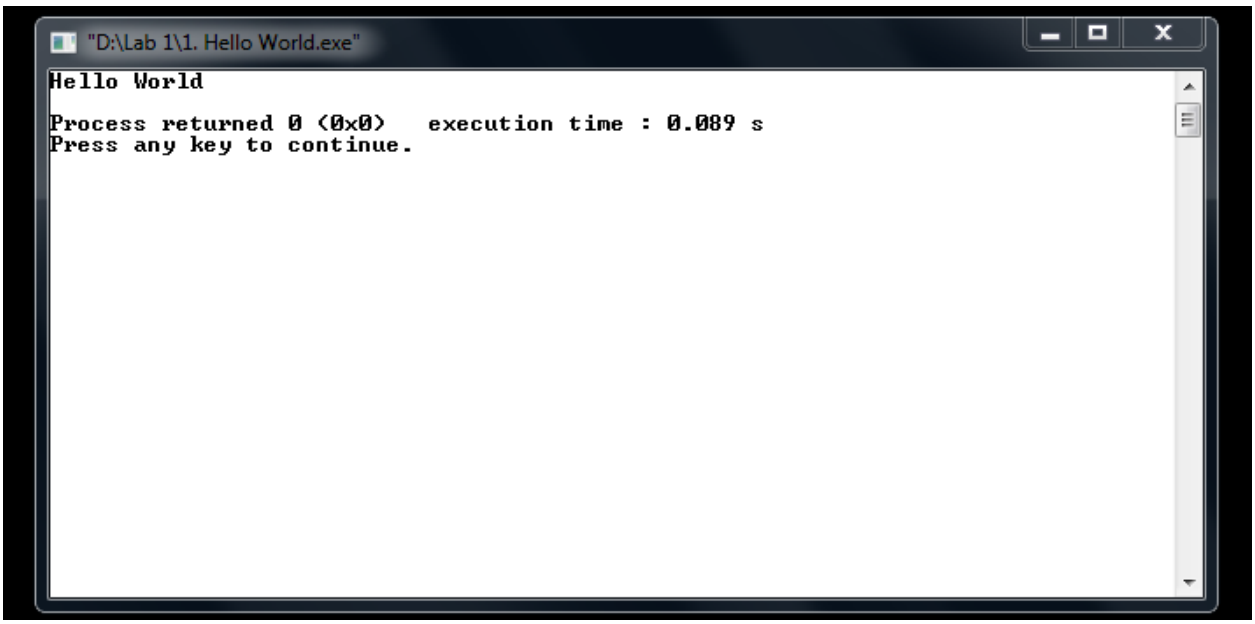
Lab 1: Introduction Programming in C

A. Creating a C Program: Hello World

Hello World C Program:

```
/*-------------------------------------------------------------------
File: 1.Hello World.c
Author: Dhrumil Naik, Zenab Bhamgerwala
Description: This program prints out a Hello World message on the screen
-------------------------------------------------------------------*/

#include <stdio.h>

void main ()
{
   printf("Hello World\n");

}
```

Hello World C Program Output:



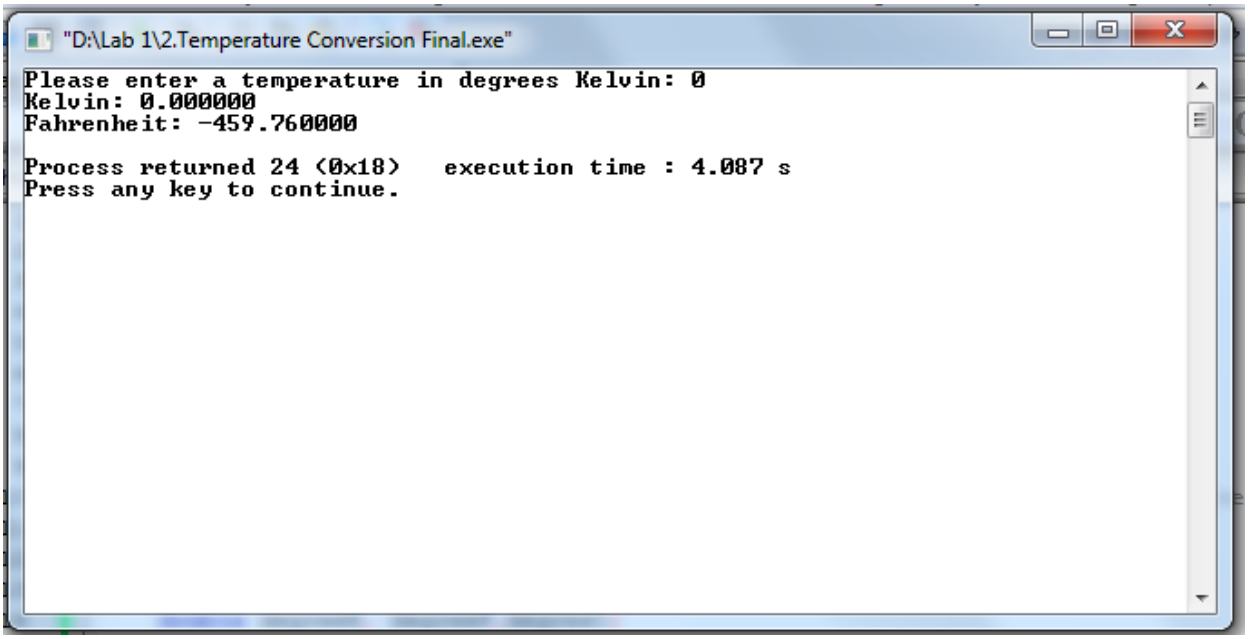
B. Exercise: Temperature Conversion

Temperature Conversion Program:

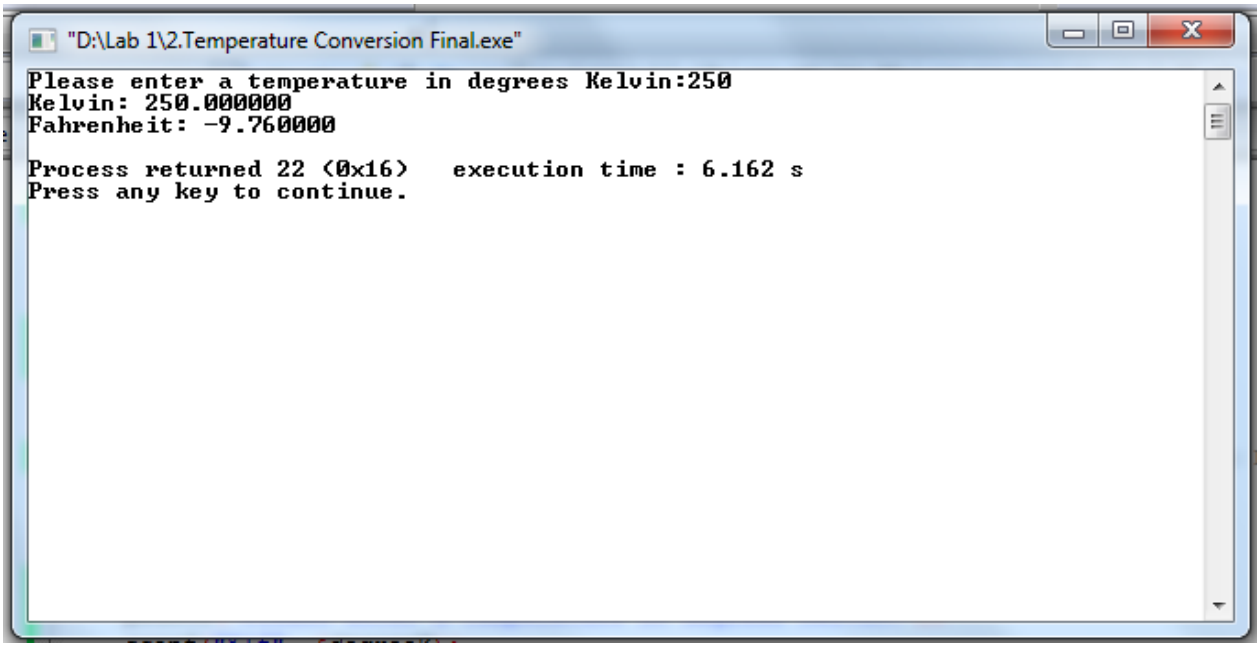
```
/*-------------------------------------------------------------
File: Temperature Conversion.c
Author: Zenab Bhamgerwala, Dhrumil Naik
Description: Temperature conversion from Kelvin to Fahrenheit
-------------------------------------------------------------*/
#include <stdio.h>
double ConvertKtoF(double);
/*-------------------------------------------------------------
Function: main
Description:The main function prompts the user to input a temperature in degrees Kelvin
-------------------------------------------------------------*/
void main(void)
{
   double degreeK, degreeF,degreeC;
   printf("Please enter a temperature in degrees Kelvin:");
   scanf("%lf", &degreeK);
   degreeF = ConvertKtoF(degreeK);
   printf("Kelvin: %f\n", degreeK);
   printf("Fahrenheit: %f\n", degreeF);

}
/*-------------------------------------------------------------
Function: ConvertKtoF
Parameters: degreeK
Return:  The value of the temperature in degrees Fahrenheit.
Description: The function receives the value of a temperature in Kelvin.
-------------------------------------------------------------*/
double ConvertKtoF(double degreeK)
{
   double degreeC;
   double degreeF;
   degreeC =(degreeK-273.2);
   degreeF =(degreeC * 9/5)+32;
   return(degreeF);
}
```

Temperature Conversion Program Output:

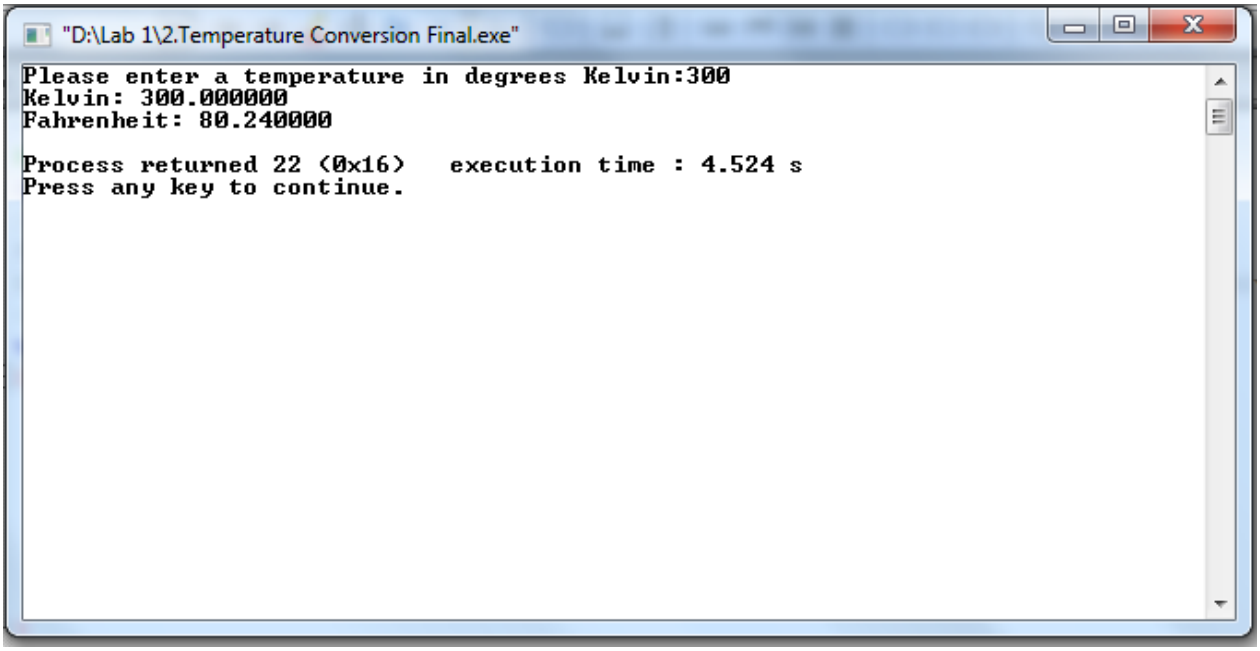
Test 1:



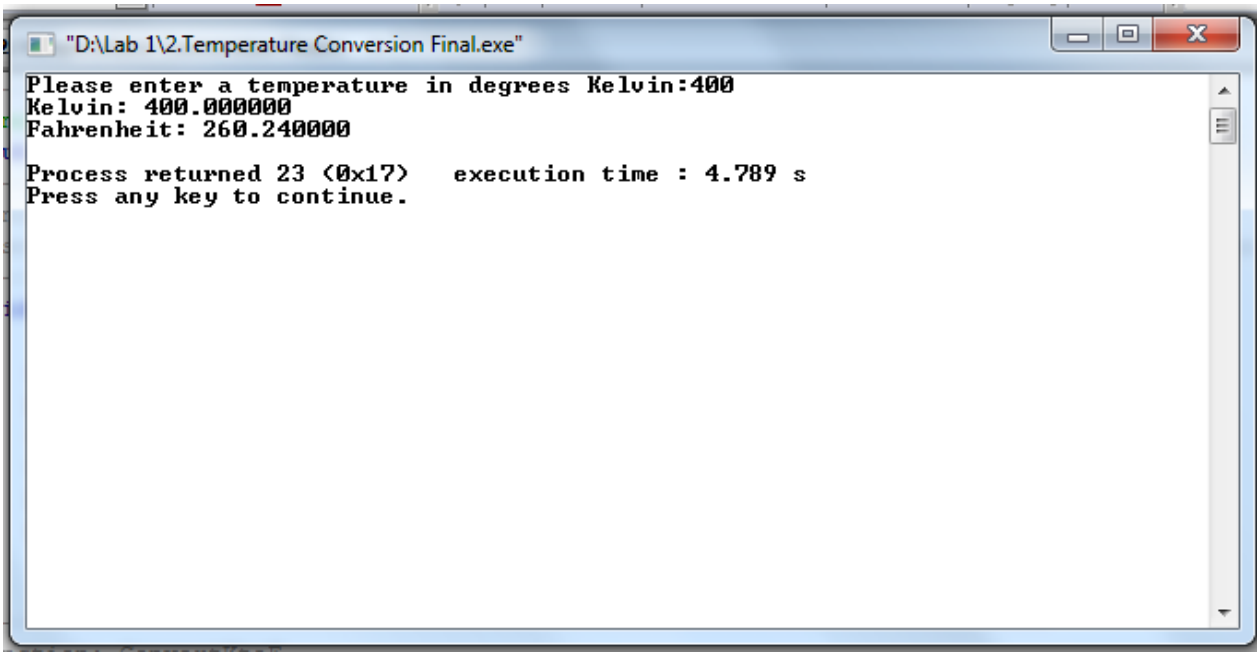
Test 2:



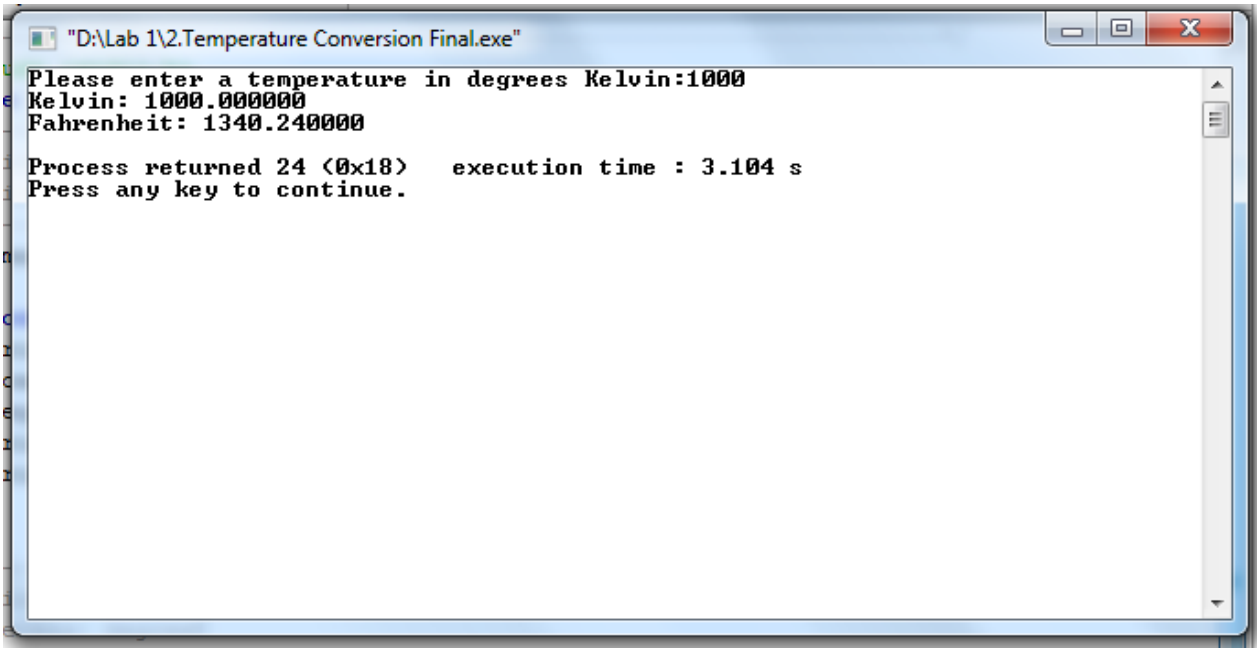
Test 3:


"D:\Lab 1\2.Temperature Conversion Final.exe"
Please enter a temperature in degrees Kelvin:300
Kelvin: 300.000000
Fahrenheit: 80.240000
Process returned 22 (0x16)   execution time : 4.524 s
Press any key to continue.

Test 4:


"D:\Lab 1\2.Temperature Conversion Final.exe"
Please enter a temperature in degrees Kelvin:400
Kelvin: 400.000000
Fahrenheit: 260.240000
Process returned 23 (0x17)   execution time : 4.789 s
Press any key to continue.

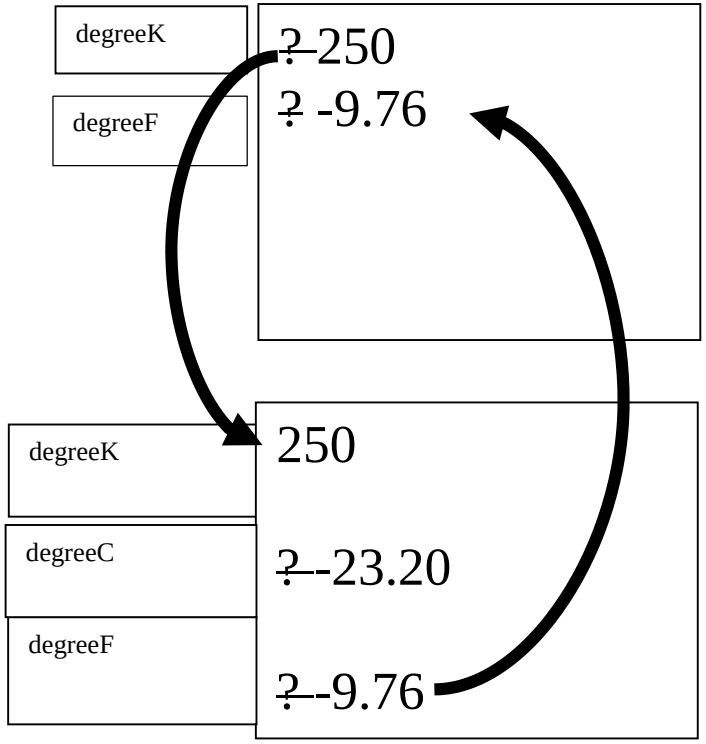
Test 5 :


"D:\Lab 1\2.Temperature Conversion Final.exe"
Please enter a temperature in degrees Kelvin:1000
Kelvin: 1000.000000
Fahrenheit: 1340.240000
Process returned 24 (0x18)   execution time : 3.104 s
Press any key to continue.

Program Memory

```
/*-------------------------------------------------------------
File: Temperature Conversion.c
Author: Zenab Bhamgerwala, Dhrumil Naik
Description: Temperature conversion from Kelvin to Fahrenheit
-------------------------------------------------------------*/
#include <stdio.h>
double ConvertKtoF(double);
/*-------------------------------------------------------------
Function: main
Description:The main function prompts the user to input a temperature in degrees Kelvin
-------------------------------------------------------------*/
void main(void)
{
   double degreeK, degreeF,degreeC;
   printf("Please enter a temperature in degrees Kelvin:");
   scanf("%lf", &degreeK);
   degreeF = ConvertKtoF(degreeK);
   printf("Kelvin: %f\n", degreeK);
   printf("Fahrenheit: %f\n", degreeF);

}
/*-------------------------------------------------------------
Function: ConvertKtoF
Parameters: degreeK
Return:  The value of the temperature in degrees Fahrenheit.
Description: The function receives the value of a temperature in Kelvin.
-------------------------------------------------------------*/
double ConvertKtoF(double degreeK)
{
   double degreeC;
   double degreeF;
   degreeC =(degreeK-273.2);
   degreeF =(degreeC * 9/5)+32;
   return(degreeF);
}
```

Working Memory



Console

```
Please enter a temperature in degrees Kelvin: 250
Kelvin: 250.00
Fahrenheit: -9.76
```

CPU