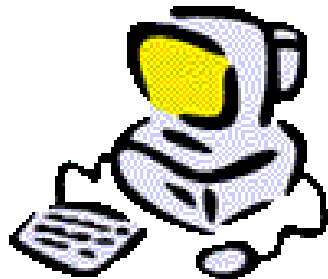
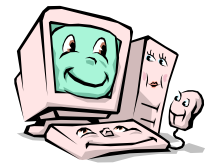


GNG 1106
Fundamentals of Engineering Computation

Lab 1 - Fall 2017
Report

Mariyam Mukhammad Azim/300125992.





Lab 1: Introduction Programming in C

A. Creating a C Program: Hello World

Hello World C Program:

```
#include <stdio.h>

void main()
{
    printf("Hello world!\n");
}
```

Hello World C Program Output:

```
Hello world!
```

```
Process returned 0 (0x0)   execution time : 0.015 s
Press any key to continue.
```

B. Exercise: Temperature Conversion

Temperature Conversion Program:

```
Author: Mariyam Mukhammad Azim
Description: This program converts degrees Kelving to degrees Fahrenheit.
-----*/
#include <stdio.h>
double convertKtoF(double);
void main()
/*-----
Function: main
Description: This function asks a user to input a value in degrees Kelvin.
            It then calls the convertKtoF function to give the value for Fahrenheit.
-----*/
{
    // Variable declarations
    double degreeK, degreeF;
    // Instructions
    printf("Please enter a temperatre in degrees Kelvin\n");
    scanf("%lf",&degreeK);
    degreeF = convertKtoF(degreeK);
    printf ("Kelvin: %lf Fahrenheit: %lf\n", degreeK, degreeF);
}
/*-----
Function: convertKtoF
Parameters:
    degreeK - the input value that needs to be converted.
Return: degreeF is being calculated for the inputted value for degreeK.
Description: degreeK is first converted to degreeC which is then converted to degreeF.
            The value for degreeF is then returned to the main function.
-----*/
double convertKtoF(double degreeK)
{
    // Variable declarations
    double degreeC, degreeF;
    // Instructions
    degreeC = degreeK-273.2;
    degreeF = (degreeC*9/5)+32;
    return degreeF;
}
```

Temperature Conversion Program Output:

```
Please enter a temperatre in degrees Kelvin
0
Kelvin: 0.000000 Fahrenheit: -459.760000

Process returned 41 (0x29)   execution time : 5.468 s
Press any key to continue.

Please enter a temperatre in degrees Kelvin
250
Kelvin: 250.000000 Fahrenheit: -9.760000

Process returned 41 (0x29)   execution time : 2.071 s
Press any key to continue.

Please enter a temperatre in degrees Kelvin
300
Kelvin: 300.000000 Fahrenheit: 80.240000

Process returned 41 (0x29)   execution time : 2.107 s
Press any key to continue.

Please enter a temperatre in degrees Kelvin
400
Kelvin: 400.000000 Fahrenheit: 260.240000

Process returned 42 (0x2A)   execution time : 5.095 s
Press any key to continue.

Please enter a temperatre in degrees Kelvin
1000
Kelvin: 1000.000000 Fahrenheit: 1340.240000

Process returned 44 (0x2C)   execution time : 2.658 s
Press any key to continue.
```

Code Memory

```
double convertKtoF(double);  
void main()  
{  
    double degreeK, degreeF;  
    printf("Please enter a temperatre in degrees Kelvin\n");  
    scanf("%lf",&degreeK);  
    degreeF = convertKtoF(degreeK);  
    printf ("Kelvin: %lf Fahrenheit: %lf\n", degreeK, degreeF);  
}  
  
double convertKtoF(double degreeK)  
{  
    double degreeC, degreeF;  
    degreeC = degreeK-273.2;  
    degreeF = (degreeC*9/5)+32;  
    return degreeF;  
}
```

Working Memory

degreeK = ~~0~~ 0 250 300 400 1000
degreeF = ~~-459.76~~ -459.76 -9.76 80.24 260.24 1340.24

degreeK = ~~0~~ 0 250 300 400 1000
degreeC = ~~-273.2~~ -273.2 -23.2 26.8 126.8 726.8
degreeF = ~~-459.76~~ -459.76 -9.76 80.24 260.24 1340.24

Console

Please enter a temperature in degrees Kelvin: 1000
Kelvin: 1000 Fahrenheit: 1340.24

CPU

degreeC = 1000 -273.2
degreeF = (726.8*9/5)+32