

COMPROG

Ares Project

Unit Converter

Project Description

- The unit converter will cover a variety of different units such as temperature, money, distance, etc. This is to help with the conversion of units when the internet is not available similar to how some calculators now have the ability to convert different units. The converter can show the formulas used to help with knowing how the conversion works.

IPO

Input:

Selected mode of conversion

Selected units for conversion

Process:

Get mode of conversion

Determine the mode of conversion

Get the units for conversion

Output:

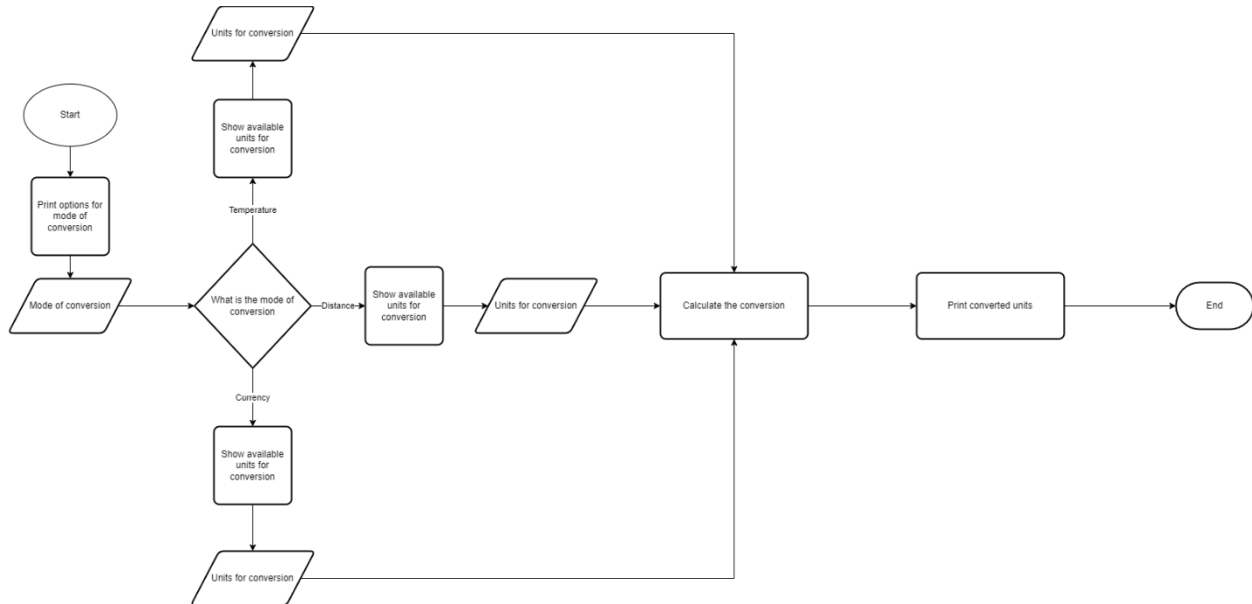
Print formula used

Print converted units

Methodology

- Using Visual Studio code we will design a program that will follow this general flowchart: if too small to see use the link

<https://drive.google.com/file/d/1NvSom8ifs4oGegJnYRFZatbLegNVAoOF/view?usp=sharing>



Ares Project Codes

```
#define _CRT_SECURE_NO_WARNINGS
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <curl/curl.h>
//Function Names to call
void Currency(void);
void TempCalc(void);
void MassCalc(void);
void LengthCalc(void);
// MENU INTERFACE
```

```

int main(void) {
    printf("\nConverter Calculator\n");

    int choice, i = 0;
    while (i < 1)
    {
        printf("\n1. Temperature Converter");
        printf("\n2. Length Converter");
        printf("\n3. Mass Converter");
        printf("\n4. Currency");
        printf("\n5. Clear Terminal");
        printf("\nEnter your choice: ");
        scanf("%d", &choice);

        if (choice == 1) { TempCalc(); } // calls on TempCalc function
        else if (choice == 2) { LengthCalc(); } // calls on LenghtCalc function
        else if (choice == 3) { MassCalc(); } // calls on MassCalc function
        else if (choice == 4) { Currency(); } // calls on Currency function
        else if (choice == 5) { system("cls"); } // clears Terminal
        else {
            printf("Invalid choice.\n");
        }
    }
    return 0;

}

//Functions
void TempCalc(void)
{
    float Celsius, Kelvin, Fahrenhiet;

```

```

int choice;
printf("Choose the unit you want to convert: \n");
printf("1.Kelvin\n");
printf("2.Celsius\n");
printf("3.Fahrenhiet \n");
scanf("%d", &choice);
switch (choice)
{
case 1: // Kelvin to Fahrenheit and Celsius
    printf("Enter the temperature in kelvin: ");
    scanf("%f", &Kelvin);
    Celsius = (Kelvin - 273.15);
    Fahrenhiet = 1.8 * (Kelvin - 273.15) + 32.0;
    printf("In Celsius the value is: %f \n", Celsius);
    printf("In Fahrenhiet the value is: %f", Fahrenhiet);
    break;
case 2: // Celsius to Fahrenheit and Kelvin
    printf("Enter the temperature in Celsius: ");
    scanf("%f", &Celsius);
    Kelvin = (Celsius + 273.15);
    Fahrenhiet = (Celsius * 1.8) + 32.0;
    printf("In kelvin the value is : %f \n", Kelvin);
    printf("In Fahrenhiet the value is: %f", Fahrenhiet);
    break;
case 3: // Fahrenheit to Celsius and Kelvin
    printf("Enter the temperature in fahrenheit: ");
    scanf("%f", &Fahrenhiet);
    Kelvin = (Fahrenhiet - 32.0) * 5 / 9 + 273.15;
    Celsius = (Fahrenhiet - 32.0) * 5 / 9;
    printf("In Celsius the value is : %f \n", Celsius);

```

```

        printf("In Kevlin the value is : %f \n", Kelvin);
        break;
default: //request for valid input
        printf("Please enter a valid number\n");
        TempCalc();
    }
}

void Currency(void) {
    // intialize curl
    CURL* curl;
    CURLcode res;
    curl_global_init(CURL_GLOBAL_DEFAULT);
    curl = curl_easy_init();
    char t[99999];
    char x[10];
    char y[10];
    char url[1000];
    printf("Enter a 3-letter currency code to convert to: ");
    scanf("%s", &x);

    printf("Enter a 3-letter currency code to convert from: ");
    scanf("%s", &y);

    printf("Enter amount in %s: ", y);
    scanf("%s", &t);
    // edit request URL
    sprintf(url,
"https://api.apilayer.com/exchangerates_data/convert?to=%s&from=%s&amount=%s",
x, y, t);

    // make request to API

```

```

if (curl) {
    curl_easy_setopt(curl, CURLOPT_CUSTOMREQUEST, "GET");
    curl_easy_setopt(curl, CURLOPT_URL, url);
    curl_easy_setopt(curl, CURLOPT_FOLLOWLOCATION, 1L);
    curl_easy_setopt(curl, CURLOPT_DEFAULT_PROTOCOL, "https");
    struct curl_slist* headers = NULL;
    headers = curl_slist_append(headers, "apikey:
A8axdoDUDaF9Lu1cw8tkwx7JIFpntPmd");
    curl_easy_setopt(curl, CURLOPT_HTTPHEADER, headers);

    res = curl_easy_perform(curl);
}
curl_easy_cleanup(curl);
}

void LengthCalc(void)
{
    int choice;
    float Length, Converted;
    printf("Choose a conversion:");
    printf("\n1: Inches to Cm (centimeters)\n2. ft (feet) to m (meters)\n3. mi (miles) to km
(kilometer)\n4. yd (yards) to m (meters)\n");
    scanf("%d", &choice);
    switch (choice)
    {
    case 1: //inches to cm
        printf("Enter length in inches: ");
        scanf("%f", &Length);
        Converted = Length * 2.54;
        printf("%f inches is equal to %.3f cm", Length, Converted);
        break;
    }
}

```

case 2: // feet to m

```
printf("Enter length in feet: ");
scanf("%f", &Length);
Converted = Length * 0.3048;
printf("%f feet is equal to %.3f m", Length, Converted);
break;
```

case 3: // miles to km

```
printf("Enter length in miles: ");
scanf("%f", &Length);
Converted = Length * 1.609344;
printf("%f miles is equal to %.3f km", Length, Converted);
break;
```

case 4: // yards to m

```
printf("Enter length in yards: ");
scanf("%f", &Length);
Converted = Length * 0.9144;
printf("%f yards is equal to %.3f m", Length, Converted);
break;
```

default: // request for valid input

```
printf("Please enter a valid number\n");
LengthCalc();
```

```
}
```

```
}
```

void MassCalc(void)

```
{
```

```
int choice;
```

```
float m1, m2;
```

```
printf("Choose a conversion:");
```

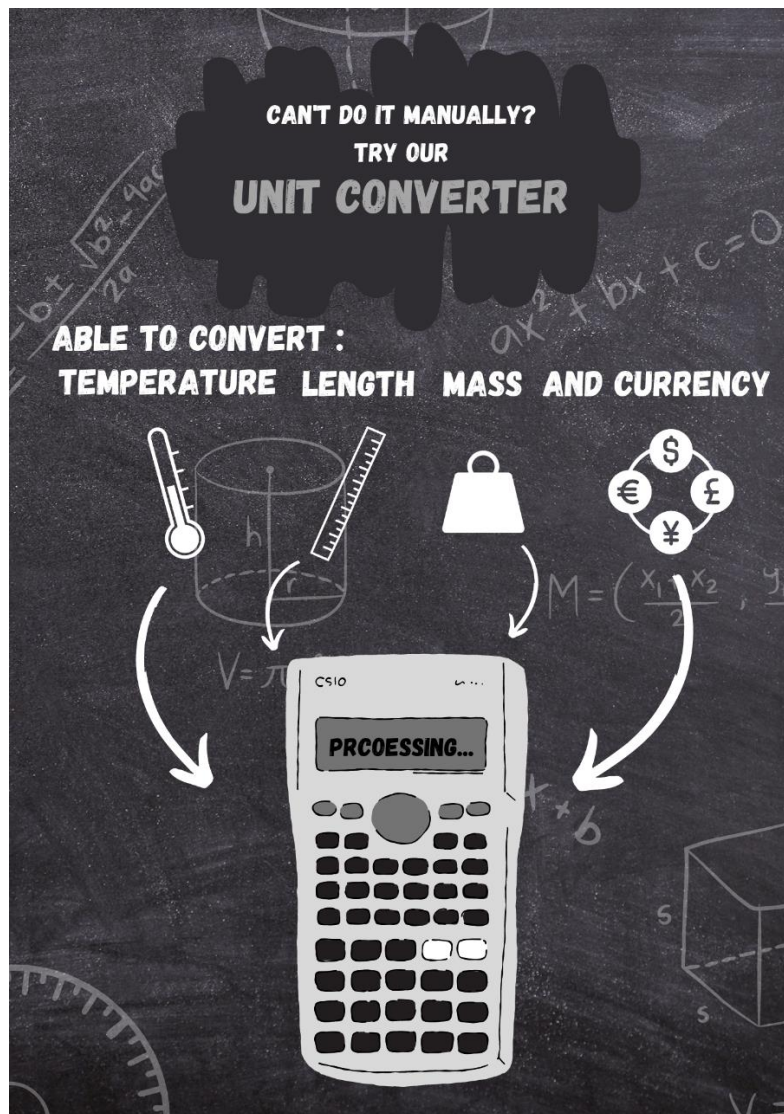
```
printf("\n1. lbs (pound) to kg (kilogram)\n2. oz (ounce) to g (gram)\n3. st (stone) to kg (kilogram)\n");
```

```

scanf("%d", &choice);
switch (choice)
{
case 1: // lbs to kg
    printf("Enter mass in lbs (pounds): ");
    scanf("%f", &m1);
    m2 = m1 * 0.45359237;
    printf("%f lbs is equal to %.3f kg", m1, m2);
    break;
case 2: // ounce to g
    printf("Enter mass in oz (ounce): ");
    scanf("%f", &m1);
    m2 = m1 * 28.34952;
    printf("%f oz is equal to %.3f in g", m1, m2);
    break;
case 3: // stone to kg
    printf("Enter mass in st (stone): ");
    scanf("%f", &m1);
    m2 = m1 * 6.35029;
    printf("%f st is equal to %.4f in kg", m1, m2);
    break;
default: // request for valid input
    printf("Please enter a valid number\n");
    MassCalc();
}
}

```


Ares (Unit Converter) Poster



Conclusion

- Our converter's completion is a feat that represents the fruition of our efforts, devotion, and problem-solving abilities. It stands for the capacity to translate concepts into workable solutions, linking the conceptual and the practical. The Converter's order and functionality, and usefulness depend on the code being finished, which calls for meticulous attention to every aspect and compliance to best practices.