**COMPROG**

**Ares Project**

Unit Converter

**Project Description**

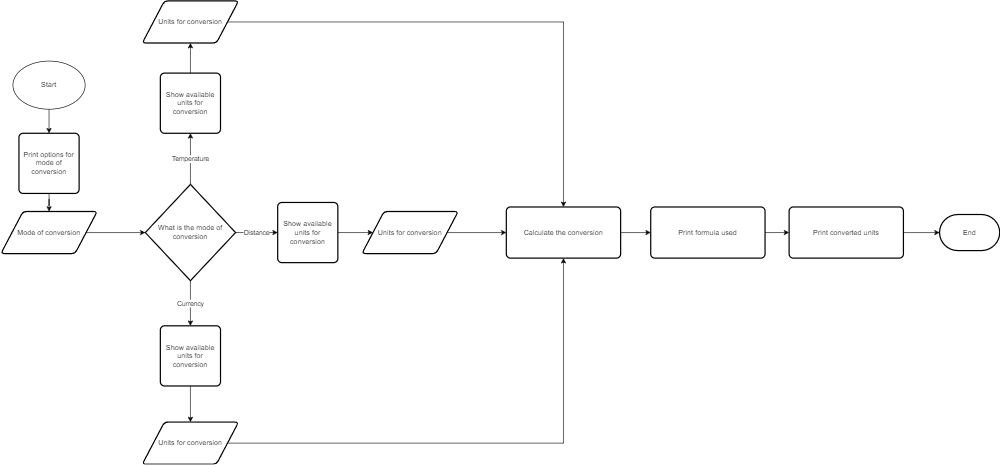
* The unit converter will cover a variety of different units such as temperature, money, distance, etc. This is to help with the conversion of units when the internet is not available similar to how some calculators now have the ability to convert different units. The converter can show the formulas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

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

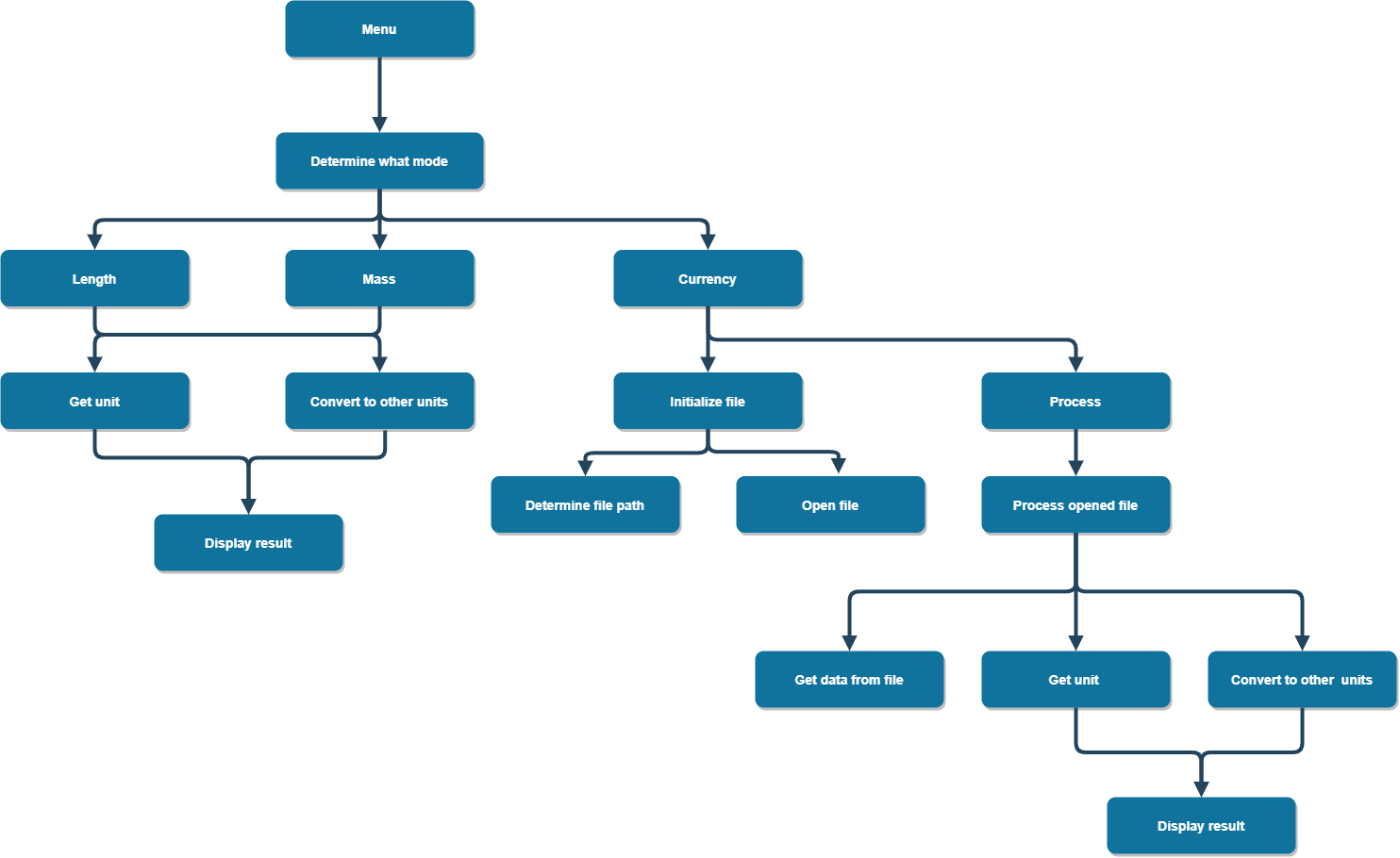
printf("Please enter a valid number\n");

MassCalc();

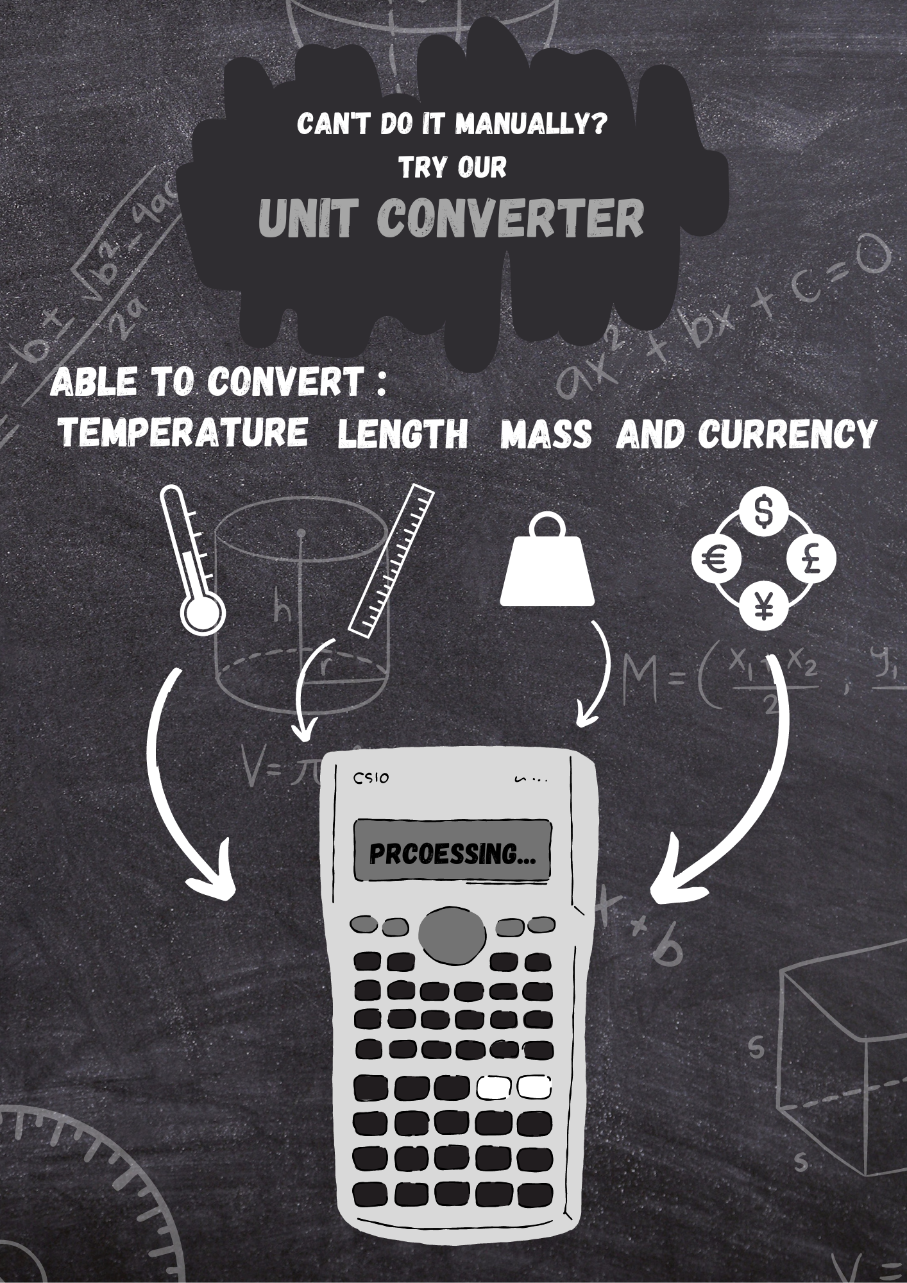
}

}

**Hierarchy Chart**

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**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.