

**PSP [20ES104] COURSE PROJECT REPORT**

**On**

**“UNITS CONVERSION”**

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**Department of Computer Science and Artificial Intelligence**

**CERTIFICATE**

This is to certify that the PSP course project report entitled **“ UNITS CONVERSION”** is a record of bonafide work carried out by the student(s) K.RAMANA, G.AMBADAS,B.AJAY & G.VAMSHI bearing roll number(s) 2205A21019, 2205A21012,2205A21003 & 2205A21010 of Computer Science and Artificial Intelligence department during the academic year 2022-23.

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# PROBLEM STATEMENT:

Develop a C Application to store details of the units conversion in terms of (temperature, mass,USD to EUR). Store the data in a dynamically allocated memory of a structure.

Provide the functionality for below mentioned:

1. Read ‘6’ unit conversion details dynamically.
2. Sort (Ascending/Descending) ‘6’ units conversion’ details according to:
   * Celsius to Fahrenheit
   * Fahrenheit to Celsius
   * USD to EUR
   * EUR to USD
   * Kilograms to Pounds
   * Pounds to Kilograms
3. Print ‘6’ unit conversions’ details.
4. Celsius to Fahrenheit:Celsius scale or centigrade scale is a temperature scale that is based on the freezing point of water at 10 degree and boiling point of water at 100 degree.Fahrenheit scale is a temperature scale that is based on the freezing point of water at 32 degree F(32^F) and the boiling point of water at 212 degree(212^F).

^C=(^F-32)x5/9

^F=(9/5x^C)+32

ii)USD to EUR:Trading the EUR/USD pair is also known as trading the “euro”.The value of the EUR/USD pair is quoted as 1 euro per x U.S.dollars.For example ,if the pair is trading at 1.50,it means it takes 1.5U.S.dollars to buy 1euro.

iii)Kilograms to Pounds:The conversion factor to keep in mind is 1kg=2.2046 lbs.Note that the symbol for kilogram is kg,and the symbol for pounds is lbs.

# MODULES:

In this application all variables and structure are declared globally so that these variables and structure members can be accessed throughout the program at any function call. We can choose any function by using function calls which are declared in switch-case. In order to repeat the loop control statement (do-while) is used with condition. The memory allocation will be done in this program dynamically. The application asks to enter the choice and then asks to enter the value to convert and finally it asks “Do you want to continue(1) else (0)?” in which the data he/she want to store.

In this application four modules are used.

1. Read/Input

In this module the application asks the person who runs the program to enter 6 units conversion details. To give 6 unit conversion details while loop is used.

1. Sorting

In this module sorting of data is done according to the chosen wise.In this module there is a sub menu which asks to select the sorting wise by using switch case. The sorting sub menu will be like press 1 to continue else 0.

In this module we used another control statement (do while) so that the application asks whether to continue sorting.

1. Searching

In this module searching of data is done according to the chosen wise.

In this module there is a sub menu which asks to select the sorting wise by using switch case. The sorting sub menu will be like press 1 to continue and get another unit conversion.

In this module we used another control statement (do while) so that the application asks whether to continue searching.

1. Print

In this module all the stored details of 6 unit conversion details will be displayed on to the screen. In this module printf function and while loop are used.

**KNOWLEDGE REQUIRED TO DEVELOP THIS APPLICATION**

* + Control Statements (if, if-else, switch)
  + Loop Statements (while/do while, for)
  + Functions (Any type of user defined functions)

**SOURCE CODE [.C FILE]:**

#include <stdio.h>

double fahrenheitToCelsius(double fahrenheit) {

return (fahrenheit - 32) \* 5/9;

}

double usdToEur(double usd) {

return usd \* 0.80;

}

double eurToUsd(double eur) {

return eur \* 1.19;

}

double kgToLb(double kg) {

return kg \* 2.205;

}

double lbToKg(double lb) {

return lb \* 0.454;

}

int main(){

int c=1;

int choice;

while(c){

float value;

printf("1. Celsius to Fahrenheit\n");

printf("2. Fahrenheit to Celsius\n");

printf("3. USD to EUR\n");

printf("4. EUR to USD\n");

printf("5. Kilograms to Pounds\n");

printf("6. Pounds to Kilograms\n");

printf("Enter your choice: ");

scanf("%d", &choice);

printf("Enter the value to convert: ");

scanf("%f",&value);

int n;

switch(choice)

{

case 1:{

printf("%.2f Celsius = %.2f Fahrenheit\n",value,value \* (9/5) + 32.00);

break;

}

case 2:

printf("%.2f Fahrenheit = %.2f Celsius\n", value, fahrenheitToCelsius(value));

break;

case 3:

printf("%.2f USD = %.2f EUR\n", value, usdToEur(value));

break;

case 4:

printf("%.2f EUR = %.2f USD\n", value, eurToUsd(value));

break;

case 5:

printf("%.2f Kilograms = %.2f Pounds\n", value, kgToLb(value));

break;

case 6:

printf("%.2f Pounds = %.2f Kilograms\n", value, lbToKg(value));

break;

default:

printf("Invalid choice!\n");

break;

}

printf("Do you want to continue (1) else (0) : ");

scanf("%d",&c);

}

printf("\n\n<<<BYE >>)");

}

**SOURCE CODE [HEADER FILE]:**

#include<stdio.h>**RESULTS:**

**OUTPUTS:**

**1. Celsius to Fahrenheit**

**2. Fahrenheit to Celsius**

**3. USD to EUR**

**4. EUR to USD**

**5. Kilograms to Pounds**

**6. Pounds to Kilograms**

**Enter your choice: 6**

**Enter the value to convert: 2**

**2.00 Pounds = 0.91 Kilograms**

**Do you want to continue (1) else (0) : 1**

**1. Celsius to Fahrenheit**

**2. Fahrenheit to Celsius**

**3. USD to EUR**

**4. EUR to USD**

**5. Kilograms to Pounds**

**6. Pounds to Kilograms**

**Enter your choice: 3**

**Enter the value to convert: 5**

**5.00 USD = 4.00 EUR**

**Do you want to continue (1) else (0) : 0**

**<<<BYE >>)**









