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Q1.

Write a c program that creates a menu. Consider the following layout

Write a message while selecting the option i.e., if you are selecting save file, then print the option as “Saving File”.

#include <stdio.h>

int main (void)

{

char char1, char2;

printf("(f)File\n(d)Edit\n(s)Search\n(e)Execute\n");

scanf(" %c", &char1);

switch(char1)

{

case 'f':

{

printf("(n)New\n(o)Open\n(s)Save as\n(c)Close");

scanf(" %c", &char2);

switch(char2)

{

case 'n':

{

printf("Making a new file\n");

break;

}

case 'o':

{

printf("Opening new file\n");

break;

}

case 's':

{

printf("Saving file\n");

break;

}

case 'c':

{

printf("Closing this file\n");

break;

}

default:

printf("Invalid choice\n");

}

break;

}

case 'd':

{

printf("(u)Undo\n(s)Select All\n");

scanf(" %c", &char2);

switch(char2)

{

case 'u':

{

printf("Undoing \n");

break;

}

case 's':

{

printf("Selecting all\n");

break;

}

default:

printf("Invalid choice\n");

}

break;

}

case 's':

{

printf("(f)Find\n(r)Replace\n");

scanf(" %c", &char2);

switch(char2)

{

case 'f':

{

printf("Finding in file \n");

break;

}

case 'r':

{

printf("replacing in file\n");

break;

}

default:

printf("Invalid choice\n");

}

break;

}

case 'e':

{

printf("(c)Compile\n(r)Run\n(z)Compile and Run\n(b)Rebuild\n(s)Syntax Check");

scanf(" %c", &char2);

switch(char2)

{

case 'c':

{

printf("Compiling... \n");

break;

}

case 'r':

{

printf("Running...\n");

break;

}

case 'z':

{

printf("Compiling and running... \n");

break;

}

case 'b':

{

printf("Rebuilding...\n");

break;

}

case 's':

{

printf("Checking syntax...\n");

break;

}

default:

printf("Invalid choice\n");

}

break;

}

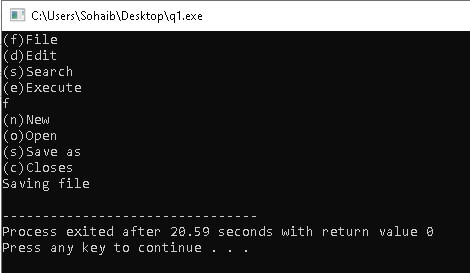
default:

printf("Invalid choice");

}

return 0;

}



Q2.

Write a C program to check isosceles, scalene or equilateral triangle when sides are given using conditional operators.

#include <stdio.h>

int main (void){

float s1, s2, s3, ans;

printf("Enter all three sides of the triangle: \n");

scanf("%f%f%f", &s1, &s2, &s3);

(s1 == s2 && s2 == s3 ? printf("Equilateral"):(s1 == s2 || s2 == s3 || s1 == s3 ? printf("issoceles"):printf("scalene")));

return 0;

}

Text

Description automatically generated

Q3

Write a program in which user enters his NTS and F.Sc marks and your program will help student in selection of university. Based on these marks Student will be allocated a seat at different department of different university.

● NUST University

Mechanical: Above 70% in Fsc. and 70 % in NTS Electrical: Above 70% in Fsc. and 60 % in NTS Telecommunication: Above 70% in Fsc. and 50 % in NTS

● NED

IT: 70% - 60 % in Fsc. and 50 % in NTS Chemical: 59% – 50 % in Fsc. and 50 % in NTS Computer: Above 40% and below 50 % in Fsc. and 50 % in NTS

#include <stdio.h>

int main (void){

float Nts, Fsc, MaxNts, MaxFsc, Nperc, Fperc;

printf("Enter marks obtained in fsc:\nEnter maximum marks for fsc:\n");

scanf("%f%f", &Fsc, &MaxFsc);

printf("Enter marks obtained in nts:\nEnter maximum marks for nts:\n");

scanf("%f%f", &Nts, &MaxNts);

Nperc = (Nts/MaxNts) \* 100;

Fperc = (Fsc/MaxFsc) \* 100;

if (Fperc > 70){

if (Nperc >= 70 && Nperc >= 70){

printf("You are selected in NUST University Mechanical Department\n");

}

else if (Nperc >= 60 && Nperc < 70){

printf("You are selected in NUST University Electrical Department\n");

}

else if (Nperc >= 50 && Nperc < 60){

printf("You are selected in NUST University Telecommunication Department\n");

}

}

else if (Fperc < 70 && Nperc > 50){

if (Fperc >= 60){

printf("You are selected in NED University IT Department\n");

}

else if (Fperc >= 50 && Fperc < 60){

printf("You are selected in NED University Chemical Department\n");

}

else if (Fperc >= 40 && Fperc < 50){

printf("You are selected in NED University Computer Department\n");

}

}

return 0;

}

Text

Description automatically generated

Q4.

Write a program to control a coffee machine. Allow the user to input the type of coffee as B for Black and W for White. Ask the user if the cup size is double (d) and the cup size is single(s). The following table details the time chart for the machine for each coffee type. Display a statement for each step. If the coffee size is double, increase the making time by double. Use functions to display instructions to the user and to compute the coffee time.

#include <stdio.h>

int main (void){

char Choice1, Choice2;

printf("Enter the type of coffee\nBlack(B)\nWhite(W)");

scanf("%c", &Choice1);

switch (Choice1)

{

case 'B':

printf("Enter size\nSingle(s)\nDouble(d)");

scanf(" %c", &Choice2);

switch (Choice2)

{

case 's':

printf("Put water: 20 mins\nSugar: 20 mins\nMix well: 25 mins\nAdd coffee: 15 mins\n Add Milk: 0 mins\nMix well: 25 mins");

break;

case 'd':

printf("Put water: 40 mins\nSugar: 40 mins\nMix well: 50 mins\nAdd coffee: 30 mins\n Add Milk: 0 mins\nMix well: mins");

break;

}

break;

case 'W':

printf("Enter size\nSingle(s)\nDouble(d)");

scanf(" %c", &Choice2);

switch (Choice2)

{

case 's':

printf("Put water: 15 mins\nSugar: 15 mins\nMix well: 20 mins\nAdd coffee: 2 mins\nAdd Milk: 4 mins\nMix well: 20 mins");

break;

case 'd':

printf("Put water: 30 mins\nSugar: 30 mins\nMix well: 40 mins\nAdd coffee: 4 mins\n Add Milk: 8 mins\nMix well: 40 mins");

break;

}

break;

}

return 0;

}

Text

Description automatically generated

Q5.

The National Earthquake Information Center has asked you to write a program implementing the following decision table to characterize an earthquake based on its Richter scale number.

We cannot handle this problem with switch statements since it contain decisions according to ranges. Since the richter scale can also be of 3.9999 therefore we will have to make infinite many cases which is humanly not possible. As a result we cannot use switch when the problem has ranges.

Q6.

Write a program to calculate the fares of seats in the train. The train has three classes i.e., Economy, AC standard, Business Class. The user will provide the number of seats in any one of the classes mentioned earlier. The user can also compute fares of seats of any combination of the classes (Economy, AC Standard, Business Class). For Example, the user wants to calculate the fares of two seats in Economy class, 2 seats in Business class and two seats in Ac Standard class. Seat in Economy class has fare equals 600 Rs. Seat in Ac standard class has fare equals 1000 Rs and Seat in business class has fare equals 2000 Rs.

#include <stdio.h>

int main (void){

int choice, num, sum = 0;

char exit = 'Y';

do

{

printf("1. Economy\n2. AC Standard\n3. Business Class\n");

printf("Enter your choice: ");

scanf("%d", &choice);

switch (choice)

{

case 1:

{

printf("Enter the number of seats you want: ");

scanf("%d", &num);

num = num \* 600;

sum += num;

break;

}

case 2:

{

printf("Enter the number of seats you want: ");

scanf("%d", &num);

num = num \* 1000;

sum += num;

break;

}

case 3:

{

printf("Enter the number of seats you want: ");

scanf("%d", &num);

num = num \* 2000;

sum += num;

break;

}

default:

printf("Error");

}

printf("Do you want to make bookings? (Y/N)");

scanf(" %c", &exit);

}while (exit != 'N');

printf("Your fare is: %d ", sum);

return 0;

}

Text

Description automatically generated

Q7.

Write a c program that prints “I will go to school” if the days are weekdays. Otherwise the program should print “I will go to play cricket”.

#include <stdio.h>

int main (void){

char choice1;

printf("Enter the weekday\nMonday(1)\nTuesday(2)\nWednesday(3)\nThursday(4)\nFriday(5)\nSaturday(6)\nSunday(7)\n");

scanf(" %c", &choice1);

switch(choice1)

{

case '1':

{

printf("I will go to school\n");

break;

}

case '2':

{

printf("I will go to school\n");

break;

}

case '3':

{

printf("I will go to school\n");

break;

}

case '4':

{

printf("I will go to school\n");

break;

}

case '5':

{

printf("I will go to school\n");

break;

}

case '6':

{

printf("I will go to play cricket\n");

break;

}

case '7':

{

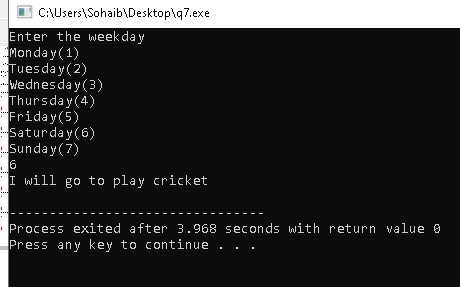
break;

}

printf("Error\n");

}

}



Q8.

A local shop sell three items. Items are USB, Handfree and charger. USB costs 800 Rs, Handfree costs 1000 Rs, charger costs 2000 Rs. The user can buy 1 item or the combination of any number of items. After selecting the item to be purchased the program should take input the number of USBs or Handfree or Charger, then compute the total amount. Sample output is attached below:

#include <stdio.h>

int main (void){

char choice1, First = ' ', Second = ' ', Third = ' ';

float Usb = 0, Handfree = 0, Charger = 0;

printf("============Items available are:============\n");

printf("1. USB\n2. Handsfree\n3. Charger\nEnter the number of items do you want to purchase:");

scanf(" %c", &choice1);

printf("\nItems available:\nEnter 1 for USB\nEnter 2 for Handsfree\nEnter 3 for Charger\n");

printf("----------------------------------------------------------\n");

switch (choice1)

{

case '1':

{

printf("Enter item\n");

scanf(" %c", &First);

break;

}

case '2':

{

printf("Enter first item\n");

scanf(" %c", &First);

printf("Enter second item\n");

scanf(" %c", &Second);

break;

}

case '3':

{

printf("Enter first item\n");

scanf(" %c", &First);

printf("Enter second item\n");

scanf(" %c", &Second);

printf("Enter third item\n");

scanf(" %c", &Third);

break;

}

default:

printf("Error\n");

}

switch (First)

{

case ' ':{

break;

}

case '1':{

printf("Enter how many USB do you want to purchase\n");

scanf("%f", &Usb);

break;

}

case '2':{

printf("Enter how many Handfree do you want to purchase\n");

scanf("%f", &Handfree);

break;

}

case '3':{

printf("Enter how many Charger do you want to purchase\n");

scanf("%f", &Charger);

break;

}

default:

printf("Error\n");

}

switch (Second)

{

case ' ':{

break;

}

case '1':{

printf("Enter how many USB do you want to purchase\n");

scanf("%f", &Usb);

break;

}

case '2':{

printf("Enter how many Handfree do you want to purchase\n");

scanf("%f", &Handfree);

break;

}

case '3':{

printf("Enter how many Charger do you want to purchase\n");

scanf("%f", &Charger);

break;

}

default:

printf("Error\n");

}

switch (Third)

{

case ' ':{

break;

}

case '1':{

printf("Enter how many USB do you want to purchase\n");

scanf("%f", &Usb);

break;

}

case '2':{

printf("Enter how many Handfree do you want to purchase\n");

scanf("%f", &Handfree);

break;

}

case '3':{

printf("Enter how many Charger do you want to purchase\n");

scanf("%f", &Charger);

break;

}

default:

printf("Error\n");

}

float Total = (Usb \* 800) + (Handfree \* 1000) + (Charger \* 2000);

if (Usb != 0){

printf("You have purchased %.0f usb(s) having value %.0f\n", Usb, Usb \* 800);

}

if (Handfree != 0){

printf("You have purchased %.0f Handfree (s) having value %.0f\n", Handfree, Handfree \* 1000);

}

if (Charger != 0){

printf("You have purchased %.0f Charger (s) having value %0.f\n", Charger, Charger \* 2000);

}

printf("The total amount is %.0f \n", Total);

}

