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**18/SCI01/047**

**Question 1:**

Write a C program to check whether a year is leap of not

Answer

#include <stdio.h>

int main() {

 int year;

 printf("Enter a year: ");

 scanf("%d", &year);

 if (year % 4 == 0) {

 if (year % 100 == 0) {

 // the year is a leap year if it is divisible by 400.

 if (year % 400 == 0)

 printf("%d is a leap year.", year);

 else

 printf("%d is not a leap year.", year);

 } else

 printf("%d is a leap year.", year);

 } else

 printf("%d is not a leap year.", year);

 return 0;

}

**Question 2**

Write a C program to find the maximum between 3 numbers

Answer

#include <stdio.h>

int main()

{

 int num1, num2, num3;

 printf("\n Enter any three different numbers");

 scanf("%d %d %d", &num1, &num2, &num3);

 if(num1>num2) {

 if(num1>num3);

 printf("%d is the largest number", num1);

 }

 if (num2>num3) {

 if (num2>num1);

 printf("%d is the largest number", num2);

 }

 if (num3>num1) {

 if (num3>num2);

 printf("%d is the largest number", num3);

 }

 return 0;

}

**Question 3**

Write a C program that calculates the GPA of a student

Answer

#include <stdio.h>

#include <string.h>

int main()

{

 int i;

 float gpa,creditSum,sumOfProdCredits,total[7],marks[7],credit[7];

 char str[100],ch;

 printf("Input scores and credit units for each of the 7 subjects:\n");

 for(i=0;i<7;i++){

 printf("(Mark - Credit):\n");

 scanf("%f %f", &marks[i],&credit[i]);

 }

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

 for(i=0;i<7;i++){

 printf("%.0f - %.0f\n",marks[i],credit[i]);

 }

// Calculating the grade points for each course using the 5.0 grading scale:

// mark>=70<=100 = A = 5 points

// mark>=60<=69 = B = 4 points

// mark>=50<=59 = C = 3 points

// mark>=45<=49 = D = 1 point

// mark>=0<=44 = F = 0 points

//grade point for first course

 if(marks[0] >= 70 && marks[0] <= 100){

 total[0]= 5\*credit[0];

 }

 else if(marks[0] >= 60 && marks[0] <= 69){

 total[0]= 4\*credit[0];

 }

 else if(marks[0] >= 50 && marks[0] <= 59){

 total[0]= 3\*credit[0];

 }

 else if(marks[0] >= 45 && marks[0] <= 49){

 total[0]= 1\*credit[0];

 }

 else if(marks[0] >= 0 && marks[0] <= 44){

 total[0]= 0\*credit[0];

 }

 //grade point for second course

 if(marks[1] >= 70 && marks[1] <= 100){

 total[1]= 5\*credit[1];

 }

 else if(marks[1] >= 60 && marks[1] <= 69){

 total[1]= 4\*credit[1];

 }

 else if(marks[1] >= 50 && marks[1] <= 59){

 total[1]= 3\*credit[1];

 }

 else if(marks[1] >= 45 && marks[1] <= 49){

 total[1]= 1\*credit[1];

 }

 else if(marks[1] >= 0 && marks[1] <= 44){

 total[1]= 0\*credit[1];

 }

 //grade point for third course

 if(marks[2] >= 70 && marks[2] <= 100){

 total[2]= 5\*credit[2];

 }

 else if(marks[2] >= 60 && marks[2] <= 69){

 total[2]= 4\*credit[2];

 }

 else if(marks[2] >= 50 && marks[2] <= 59){

 total[2]= 3\*credit[2];

 }

 else if(marks[2] >= 45 && marks[2] <= 49){

 total[2]= 1\*credit[2];

 }

 else if(marks[2] >= 0 && marks[2] <= 44){

 total[2]= 0\*credit[2];

 }

 //grade point for fourth course

 if(marks[3] >= 70 && marks[3] <= 100){

 total[3]= 5\*credit[3];

 }

 else if(marks[3] >= 60 && marks[3] <= 69){

 total[3]= 4\*credit[3];

 }

 else if(marks[3] >= 50 && marks[3] <= 59){

 total[3]= 3\*credit[3];

 }

 else if(marks[3] >= 45 && marks[3] <= 49){

 total[3]= 1\*credit[3];

 }

 else if(marks[3] >= 0 && marks[3] <= 44){

 total[3]= 0\*credit[3];

 }

 //grade point for fifth course

 if(marks[4],marks[4] >= 70 && marks[4],marks[4] <= 100){

 total[4]= 5\*credit[4];

 }

 else if(marks[4] >= 60 && marks[4] <= 69){

 total[4]= 4\*credit[4];

 }

 else if(marks[4] >= 50 && marks[4] <= 59){

 total[4]= 3\*credit[4];

 }

 else if(marks[4] >= 45 && marks[4] <= 49){

 total[4]= 1\*credit[4];

 }

 else if(marks[4] >= 0 && marks[4] <= 44){

 total[4]= 0\*credit[4];

 }

 //grade point for sixth course

 if(marks[5],marks[5] >= 70 && marks[5],marks[5] <= 100){

 total[5]= 5\*credit[5];

 }

 else if(marks[5] >= 60 && marks[5] <= 69){

 total[5]= 4\*credit[5];

 }

 else if(marks[5] >= 50 && marks[5] <= 59){

 total[5]= 3\*credit[5];

 }

 else if(marks[5] >= 45 && marks[5] <= 49){

 total[5]= 1\*credit[5];

 }

 else if(marks[5] >= 0 && marks[5] <= 44){

 total[5]= 0\*credit[5];

 }

 //grade point for seventh course

 if(marks[6],marks[6] >= 70 && marks[6],marks[6] <= 100){

 total[6]= 5\*credit[6];

 }

 else if(marks[6] >= 60 && marks[6] <= 69){

 total[6]= 4\*credit[6];

 }

 else if(marks[6] >= 50 && marks[6] <= 59){

 total[6]= 3\*credit[6];

 }

 else if(marks[6] >= 45 && marks[6] <= 49){

 total[6]= 1\*credit[6];

 }

 else if(marks[6] >= 0 && marks[6] <= 44){

 total[6]= 0\*credit[6];

 }

 sumOfProdCredits=total[0]+total[1]+total[2]+total[3]+total[4]+total[5]+total[6];

 printf("Total obtained units:%.0f\n", sumOfProdCredits);

 creditSum=credit[0]+credit[1]+credit[2]+credit[3]+credit[4]+credit[5]+credit[6];

 printf("Total credit units:%.0f\n", creditSum);

 gpa = sumOfProdCredits/creditSum;

 printf("\nYour GPA is:%.3f", gpa);

 return 0;

}