C Programming homework

1. #include <stdio.h>

int main() {

int a, b;

printf("Enter two numbers: ");

scanf("%d %d", &a, &b);

if (a > b) {

printf("Maximum is %d\n", a);

} else {

printf("Maximum is %d\n", b);

}

    return 0;

}

2. #include <stdio.h>

int main() {

int a, b, c;

printf("Enter three numbers: ");

scanf("%d %d %d", &a, &b, &c);

if (a > b && a > c) {

printf("Maximum is %d\n", a);

} else if (b > c) {

printf("Maximum is %d\n", b);

} else {

printf("Maximum is %d\n", c);

}

    return 0;

}

3. #include <stdio.h>

int main() {

int num;

printf("Enter a number: ");

scanf("%d", &num);

if (num > 0) {

printf("The number is positive\n");

} else if (num < 0) {

printf("The number is negative\n");

} else {

printf("The number is zero\n");

}

    return 0;

}

4. #include <stdio.h>

int main() {

int num;

printf("Enter a number: ");

scanf("%d", &num);

if (num % 5 == 0 && num % 11 == 0) {

printf("The number is divisible by both 5 and 11\n");

} else {

printf("The number is not divisible by both 5 and 11\n");

}

    return 0;

}

5. #include <stdio.h>

int main() {

int num;

printf("Enter a number: ");

scanf("%d", &num);

if (num % 2 == 0) {

printf("The number is even\n");

} else {

printf("The number is odd\n");

}

    return 0;

}

6. #include <stdio.h>

int main() {

int year;

printf("Enter a year: ");

scanf("%d", &year);

if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)) {

printf("The year is a leap year\n");

} else {

printf("The year is not a leap year\n");

}

    return 0;

}

7. #include <stdio.h>

#include <ctype.h>

int main() {

char ch;

printf("Enter a character: ");

scanf(" %c", &ch);

if (isalpha(ch)) {

printf("The character is an alphabet\n");

} else {

printf("The character is not an alphabet\n");

}

    return 0;

}

8. #include <stdio.h>

#include <ctype.h>

int main() {

char ch;

printf("Enter an alphabet: ");

scanf(" %c", &ch);

ch = tolower(ch);

if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {

printf("The alphabet is a vowel\n");

} else {

printf("The alphabet is a consonant\n");

}

    return 0;

}

9. #include <stdio.h>

#include <ctype.h>

int main() {

char ch;

printf("Enter a character: ");

scanf(" %c", &ch);

if (isalpha(ch)) {

printf("The character is an alphabet\n");

} else if (isdigit(ch)) {

printf("The character is a digit\n");

} else {

printf("The character is a special character\n");

}

    return 0;

}

10. #include <stdio.h>

#include <ctype.h>

int main() {

char ch;

printf("Enter a character: ");

scanf(" %c", &ch);

if (isupper(ch)) {

printf("The character is uppercase\n");

} else if (islower(ch)) {

printf("The character is lowercase\n");

} else {

printf("The character is not an alphabet\n");

}

    return 0;

}

11. #include <stdio.h>

int main() {

int weekNumber;

printf("Enter week number (1-7): ");

scanf("%d", &weekNumber);

switch (weekNumber) {

case 1: printf("Monday\n"); break;

case 2: printf("Tuesday\n"); break;

case 3: printf("Wednesday\n"); break;

case 4: printf("Thursday\n"); break;

case 5: printf("Friday\n"); break;

case 6: printf("Saturday\n"); break;

case 7: printf("Sunday\n"); break;

default: printf("Invalid week number\n"); break;

}

return 0;

}

12. #include <stdio.h>

int main() {

int month;

printf("Enter month number (1-12): ");

scanf("%d", &month);

switch (month) {

case 1: case 3: case 5: case 7: case 8: case 10: case 12:

printf("31 days\n");

break;

case 4: case 6: case 9: case 11:

printf("30 days\n");

break;

case 2:

printf("28/29 days\n"); // February

break;

default:

printf("Invalid month number\n");

break;

}

return 0;

}

13. #include <stdio.h>

int main() {

int amount;

printf("Enter the amount: ");

scanf("%d", &amount);

int notes\_2000 = amount / 2000;

amount %= 2000;

int notes\_500 = amount / 500;

amount %= 500;

int notes\_100 = amount / 100;

amount %= 100;

int notes\_50 = amount / 50;

amount %= 50;

int notes\_20 = amount / 20;

amount %= 20;

int notes\_10 = amount / 10;

amount %= 10;

int notes\_5 = amount / 5;

amount %= 5;

int notes\_1 = amount / 1;

printf("2000: %d\n", notes\_2000);

printf("500: %d\n", notes\_500);

printf("100: %d\n", notes\_100);

printf("50: %d\n", notes\_50);

printf("20: %d\n", notes\_20);

printf("10: %d\n", notes\_10);

printf("5: %d\n", notes\_5);

printf("1: %d\n", notes\_1);

   return 0;

}

14. #include <stdio.h>

int main() {

int angle1, angle2, angle3;

printf("Enter the three angles of a triangle: ");

scanf("%d %d %d", &angle1, &angle2, &angle3);

if (angle1 + angle2 + angle3 == 180) {

printf("The triangle is valid\n");

} else {

printf("The triangle is not valid\n");

}

return 0;

}

15. #include <stdio.h>

int main() {

int a, b, c;

printf("Enter the three sides of a triangle: ");

scanf("%d %d %d", &a, &b, &c);

if (a + b > c && a + c > b && b + c > a) {

printf("The triangle is valid\n");

} else {

printf("The triangle is not valid\n");

}

return 0;

}

16. #include <stdio.h>

int main() {

int a, b, c;

printf("Enter the three sides of a triangle: ");

scanf("%d %d %d", &a, &b, &c);

if (a == b && b == c) {

printf("The triangle is equilateral\n");

} else if (a == b || b == c || a == c) {

printf("The triangle is isosceles\n");

} else {

printf("The triangle is scalene\n");

}

    return 0;

}

17. #include <stdio.h>

#include <math.h>

int main() {

double a, b, c;

printf("Enter coefficients a, b, and c: ");

scanf("%lf %lf %lf", &a, &b, &c);

double discriminant = b \* b - 4 \* a \* c;

if (discriminant > 0) {

double root1 = (-b + sqrt(discriminant)) / (2 \* a);

double root2 = (-b - sqrt(discriminant)) / (2 \* a);

printf("Roots are real and different.\n");

printf("Root 1 = %.2lf\n", root1);

printf("Root 2 = %.2lf\n", root2);

} else if (discriminant == 0) {

double root = -b / (2 \* a);

printf("Roots are real and the same.\n");

printf("Root = %.2lf\n", root);

} else {

double realPart = -b / (2 \* a);

double imaginaryPart = sqrt(-discriminant) / (2 \* a);

printf("Roots are complex and different.\n");

printf("Root 1 = %.2lf + %.2lf i\n", realPart, imaginaryPart);

printf("Root 2 = %.2lf - %.2lf i\n", realPart, imaginaryPart);

}

    return 0;

}

18. #include <stdio.h>

int main() {

float costPrice, sellingPrice;

printf("Enter cost price: ");

scanf("%f", &costPrice);

printf("Enter selling price: ");

scanf("%f", &sellingPrice);

if (sellingPrice > costPrice) {

printf("Profit: %.2f\n", sellingPrice - costPrice);

} else if (sellingPrice < costPrice) {

printf("Loss: %.2f\n", costPrice - sellingPrice);

} else {

printf("No Profit No Loss\n");

}

    return 0;

}

19. #include <stdio.h>

int main() {

float physics, chemistry, biology, math, computer;

float totalMarks, percentage;

printf("Enter marks for Physics: ");

scanf("%f", &physics);

printf("Enter marks for Chemistry: ");

scanf("%f", &chemistry);

printf("Enter marks for Biology: ");

scanf("%f", &biology);

printf("Enter marks for Mathematics: ");

scanf("%f", &math);

printf("Enter marks for Computer: ");

scanf("%f", &computer);

totalMarks = physics + chemistry + biology + math + computer;

percentage = (totalMarks / 500) \* 100;

printf("Percentage: %.2f%%\n", percentage);

if (percentage >= 90) {

printf("Grade: A\n");

} else if (percentage >= 80) {

printf("Grade: B\n");

} else if (percentage >= 70) {

printf("Grade: C\n");

} else if (percentage >= 60) {

printf("Grade: D\n");

} else if (percentage >= 40) {

printf("Grade: E\n");

} else {

printf("Grade: F\n");

}

    return 0;

}

20. #include <stdio.h>

int main() {

float basicSalary, hra, da, grossSalary;

printf("Enter basic salary: ");

scanf("%f", &basicSalary);

if (basicSalary <= 10000) {

hra = basicSalary \* 0.20;

da = basicSalary \* 0.80;

} else if (basicSalary <= 20000) {

hra = basicSalary \* 0.25;

da = basicSalary \* 0.90;

} else {

hra = basicSalary \* 0.30;

da = basicSalary \* 0.95;

}

grossSalary = basicSalary + hra + da;

printf("Gross Salary: %.2f\n", grossSalary);

    return 0;

}

21. #include <stdio.h>

int main() {

float units, bill, surcharge;

printf("Enter number of units consumed: ");

scanf("%f", &units);

if (units <= 50) {

bill = units \* 0.50;

} else if (units <= 150) {

bill = (50 \* 0.50) + ((units - 50) \* 0.75);

} else if (units <= 250) {

bill = (50 \* 0.50) + (100 \* 0.75) + ((units - 150) \* 1.20);

} else {

bill = (50 \* 0.50) + (100 \* 0.75) + (100 \* 1.20) + ((units - 250) \* 1.50);

}

surcharge = bill \* 0.20;

bill += surcharge;

printf("Total Electricity Bill: %.2f\n", bill);

    return 0;

}