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# **ASSIGNMENT-1**

Ques -1 :- Wap to check whether a given Armstrong is or not ?

Solution:-

#include <stdio.h>

int main() {

int num,sum = 0,temp,digit;

printf("enter an integer:");

scanf("%d",&num);

temp=num;

while(temp>0) {

digit=temp%10;

sum += digit \* digit \* digit;

temp/=10;

}

if(sum==num){

printf("%d is an armstrong number.\n",num);

}

else{

printf("%d is not an armstrong.\n",num);

}

    return 0;

}

Ques-2:- Wap to read two integers and print their HCF?

Solution :-

#include <stdio.h>

int main(){

int num1,num2,hcf,i;

printf("enter two integers:");

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

for(i=1;i<= num1 && i<+num2;i++)

{

if(num1%i==0 && num2%i==0){

hcf = i;

}

}

printf("hcf of %d and %d is %d.\n", num1,num2,hcf);

    return 0;

}

Ques -3 :- Wap to subtract two integers without using Minus(-) operator.(Hint bitwise operator)?

Solution:-

#include <stdio.h>

int subtract(int a,int b){

while(b !=0){

int borrow =(-a) & b;

a = a^b;

b = borrow<<1;

}

return a;

}int main(){

int num1,num2;

printf("enter two integers:");

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

int result = subtract(num1,num2);

printf("result of %d-%d is %d.\n",num1,num2,result);

}

Ques 4:- Wap to accept two integers numbers and swap them using 4 different methods in c language?

Solution:-

#include <stdio.h>

int main() {

int a,b,temp;

printf("enter first integer(a):");

scanf("%d",&a);

printf("enter second integer(b)");

scanf("%d",&b);

printf("before swapping:a=%d,b=%d\n",a,b);

temp = a;

a=b;

b=temp;

printf("after swapping:a=%d,b=%d\n",a,b);

return 0;

}

#include <studio.h>

int main() {

int a,b,temp;

printf("enter first integer(a):");

scanf("%d",&a);

printf("enter second integer(b)");

scanf("%d",&b);

printf("before swapping:a=%d,b=%d\n",a,b);

a=a+b;

b=a-b;

a=a-b;

printf("after swapping:a=%d,b=%d\n",a,b);

return 0;}

#include <stdio.h>

int main() {

int a,b,temp;

printf("enter first integer(a):");

scanf("%d",&a);

printf("enter second integer(b)");

scanf("%d",&b);

printf("before swapping:a=%d,b=%d\n",a,b);

a=a^b;

b=a^b;

a=a^b;

printf("after swapping:a=%d,b=%d\n",a,b);

return 0;

}

#include <stdio.h>

void swap(int \*x,int \*y){

int temp;

temp=\*x;

\*x=\*y;

\*y=temp;

}

int main(){

int a,b;

printf("enter first integer(a):");

scanf("%d",&a);

printf("before swapping:a=%d,b=%\n",a,b);

swap(&a,&b);

printf("after swapping:a = %d,b = %d\n",a,b);

 }

Ques 5:- WAP to check whether number is Perfect Number or not. (To check perfect number, we have to find all divisors of that number and find their sum, if sum of divisors is equal to number it means number is Perfect Number.) In c language?

Solution:-

int isPerfectNumber(int num) {

int sum = 0;

// Find divisors and calculate their sum

for (int i = 1; i <= num / 2; i++) {

if (num % i == 0) {

sum += i;

}

}

return sum == num;

}

int main() {

int number;

// Input a number

printf("Enter a number: ");

scanf("%d", &number);

// Check if the number is a perfect number

if (isPerfectNumber(number)) {

printf("%d is a Perfect Number.\n", number);

} else {

printf("%d is not a Perfect Number.\n", number);

}

return 0;

}

Ques 6:- WAP to accept a coordinate point in an XY coordinate system and determine in which quadrant the coordinate point lies.?

Test Data: 7 9

Expected Output: The coordinate point (7,9) lies in the First quadrant.

Solution:-

#include <stdio.h>

int main() {

int x, y;

printf("Enter the X coordinate: ");

scanf("%d", &x);

printf("Enter the Y coordinate: ");

scanf("%d", &y);

if (x > 0 && y > 0) {

printf("The point (%d, %d) is in the first quadrant.\n", x, y);

} else if (x < 0 && y > 0) {

printf("The point (%d, %d) is in the second quadrant.\n", x, y);

} else if (x < 0 && y < 0) {

printf("The point (%d, %d) is in the third quadrant.\n", x, y);

} else if (x > 0 && y < 0) {

printf("The point (%d, %d) is in the fourth quadrant.\n", x, y);

} else if (x == 0 && y == 0) {

printf("The point is at the origin.\n");

} else if (x == 0) {

printf("The point is on the Y-axis.\n");

} else if (y == 0) {

printf("The point is on the X-axis.\n");

}

return 0;

}

Ques 7:- Wap to binary to decimal conversion & decimal to binary for a given number as per user's choice?

Solution:-

#include <stdio.h>

int binaryToDecimal(int binary) {

int decimal = 0, base = 1, rem;

while (binary > 0) {

rem = binary % 10;

decimal += rem \* base;

binary /= 10;

base \*= 2;

}

return decimal;

}

void decimalToBinary(int decimal) {

if (decimal == 0) {

printf("0");

return;

}

int binary[32], index = 0;

while (decimal > 0) {

binary[index++] = decimal % 2;

decimal /= 2;

}

for (int i = index - 1; i >= 0; i--)

printf("%d", binary[i]);

}

int main() {

int choice, num;

printf("1. Binary to Decimal\n2. Decimal to Binary\nChoose: ");

scanf("%d", &choice);

if (choice == 1) {

printf("Enter binary: ");

scanf("%d", &num);

printf("Decimal: %d\n", binaryToDecimal(num));

} else if (choice == 2) {

printf("Enter decimal: ");

scanf("%d", &num);

printf("Binary: ");

decimalToBinary(num);

printf("\n");

} else {

printf("Invalid choice.\n");

}

    return 0;

}

Ques 8:- WAP to print below mentioned pattern:

1

01

101

0101

10101

Solution:-

#include <stdio.h>

int main() {

int rows = 5; // Number of rows

for (int i = 0; i < rows; i++) {

for (int j = 0; j <= i; j++) {

if ((i + j) % 2 == 0) {

printf("1");

} else {

printf("0");

}

}

printf("\n");

}

    return 0;

}

Ques-9:-Wap to print following pyramid:-

0 0

01 01

010 010

0101 0101

0101001010

Solution:-

#include <stdio.h>

int main() {

int rows = 5;

for (int i = 0; i < rows; i++) {

for (int j = 0; j <= i; j++) {

printf("%d", j % 2);

}

for (int j = 0; j < (rows - i - 1) \* 2; j++) {

printf(" ");

}

for (int j = 0; j <= i; j++) {

printf("%d", j % 2);

}

printf("\n"); // Move to the next line

}

for (int i = 0; i < rows \* 2; i++) {

printf("%d", i % 2);

}

printf("\n");

    return 0;

}

Ques-10:- Wap to print Pascal's Triangle?

Solution:-

#include <stdio.h>

int main() {

int rows, coef = 1;

printf("Enter the number of rows: ");

scanf("%d", &rows);

for (int i = 0; i < rows; i++) {

for (int j = 0; j < rows - i - 1; j++) {

printf(" ");

}

for (int j = 0; j <= i; j++) {

if (j == 0 || i == 0) {

coef = 1;

} else {

coef = coef \* (i - j + 1) / j;

}

printf("%d ", coef);

}

printf("\n");

}

    return 0;

}