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Day:

Assignment no: // 03
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Section: // "B" / semester 1

Write a program to check if a number entered by the user is positive, negative, or zero using if-else.

Solutions—

```
#include <iostream>
using namespace std;
int main() {
    int num;
    cout << "enter a number:" << endl;
    cin >> num;
    if (num > 0) {
        cout << "The number is positive" << endl;
    }
    else if (num < 0) {
        cout << "the number is negative" << endl;
    }
}
```

cout << "the number is zero." << endl;

}

return 0;

}

Write a program that takes a number as input and checks whether it is even or odd using if else.

Solution:-

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
    int num = 10;
```

```
    cout << "Enter the number:"
```

```
    if (num % 2 == 0) {
```

```
        cout << "the number is even." << endl;
```

```
}
```

```
else {
```

```
    cout << "The number is odd." << endl;
```

```
}
```

```
return 0;
```

```
}
```

Write a program to find the largest of three numbers using if-else.

Solution:-

```
#include <iostream>
using namespace std;
int main () {
    int num1=8, num2=9, num3=10;
    cout << "Enter the numbers:";

    if (num1 >= num2 && num1 >= num3) {
        cout << "The largest number is", num1, endl;
    }

    else if (num2 >= num1 && num2 >= num3) {
        cout << "The largest number is", num2, endl;
    }

    else {
        cout << "The largest number is", num3, endl;
    }

    return 0;
}
```

Write a program that asks the user to enter the marks and determines the grade using multiple if else:

Marks ≥ 90 : Grade A

Marks ≥ 80 : Grade B

Marks 70 : Grade C

Marks 60 : Grade D

Otherwise: Fall

Solutions:-

```
# include <iostream>
```

```
using namespace std;
```

```
int main( ) {
```

```
    int marks;
```

```
    cout << "enter the marks :";
```

```
    cin >> marks;
```

```
    if (marks >= 90) {
```

```
        cout << "Grade A" << endl;
```

```
}
```

```
    else if (marks >= 80) {
```

```
        cout << "Grade B" << endl;
```

```
}
```

```
    else if (marks >= 70) {
```

```
        cout << "Grade C" << endl;
```

```
}
```

```
    else if (marks >= 60) {
```

```
        cout << "Grade D" << endl;
```

```
}
```

```
    else {
```

```
        cout << "Fall" << endl;
```

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```
}
```

```
return 0;
```

```
}
```

Write a program that checks whether a year entered by the user is a leap year or not using if else

Solutions-

```
# include <iostream>
using namespace std;
int main()
{
    int year;
    cout << "Enter a year:";
    cin >> year;
    if((year%4==0 && year%100!=0) || (year%400==0))
        cout << year << " is a leap." << endl;
    else
        cout << year << " is not a leap." << endl;
    return 0;
}
```

Write a program to check whether a character entered by the user is a vowel or consonant using if-else.

Solutions:-

```
#include <iostream>
using namespace std;
int main() {
    char ch;
    cout << "Enter a character:" << endl;
    cin >> ch;
    ch = tolower(ch);
    if(ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {
        cout << ch << " is a vowel." << endl;
    }
    else {
        cout << ch << " is a consonant." << endl;
    }
    return 0;
}
```

Write a program to calculate the electricity bill based on the following conditions:

Up to 100 units: ₹ 5 per unit

101 to 300 units: ₹ 7 per unit

Above 300 units: ₹ 10 per unit

Display the total bill.

Solution:-

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
int (main) units;
```

```
float bill;
```

```
cout << "Enter the number of units consumed:";
```

```
cin >> units;
```

```
if (units <= 100){
```

```
bill = units * 5;
```

```
}
```

```
else if (units <= 300){
```

```
bill = (units * 5) + (units - 100) * 7;
```

```
}
```

```
else {
```

```
bill = (units * 5) + (units * 7) + (units - 300) * 10;
```

```
}
```

```
cout << "Total electricity bill ₹" << bill << endl;
```

```
return 0;
```

```
}
```

 CamScanner

Write a program that takes an integer from the user and determines whether it is a multiple of both 3 and 5 using if.

Solution -

```
#include <iostream>
using namespace std;
int main() {
    int num;
    cout << "Enter an integer:";
    cin >> num;
    if (num % 3 == 0 && num % 5 == 0) {
        cout << num << "is a multiple of both 3 and 5." << endl;
    } else {
        cout << num << "is not a multiple of both 3 and 5." << endl;
    }
    return 0;
}
```

Write a program to check whether an entered character is uppercase, lowercase, digital, or special symbol using multiple if-else.

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Solution:-

```
#include <iostream>
using namespace std;
int main() {
    char ch;
    cout << "Enter a character";
    cin >> ch;
    if (ch >= 'A' && ch <= 'Z') {
        cout << "The character is an uppercase letter." << endl;
    }
    else if (ch >= 'a' && ch <= 'z') {
        cout << "The character is a lowercase letter." << endl;
    }
    else if (ch >= '0' && ch <= '9') {
        cout << "The character is a digit." << endl;
    }
    else {
        cout << "The character is a special symbol." << endl;
    }
    return 0;
}
```

Write a program to determine the eligibility of a person to vote based on their age (age ≥ 18 is eligible).

Solution:-

```
# include <iostream>
using namespace std;

int main() {
    int age = 18;
    cout << "Enter the age:";

    if (age >= 18) {
        cout << "You are eligible vote.", endl;
    }
    else {
        cout << "You are not eligible vote.", endl;
    }
    return 0;
}
```

Write a program to print numbers from 1 to 10 using a for loop.

Solutions-

```
# include <iostream>
using namespace std;

int main() {
    for (int i = 1; i <= 10; i++) {
```

```

cout << i << endl;
}
return 0;
}

```

Write a program to find the sum of the first n natural numbers using a for loop.

Solution:

```

#include <iostream>
using namespace std;
int main () {
    int n;
    int sum = 0;
    cout << "Enter a positive integer:";
    cin >> n;
    for (int i = 1; i <= n; i++) {
        sum += i; // Add the current number
        to the sum
    }
    cout << "The sum of the first " << n << " natural numbers
is: " << sum << endl;
    return 0;
}

```

Write a program to print the multiplication table of a number entered by the user using a for loop.

Solution:-

```
#include <iostream>
using namespace std;
int main() {
    int num;
    cout << "Enter a number:" << endl;
    cin >> num;
    cout << "Multiplication table of " << num << " is:" << endl;
    for (int i=1; i<=10; i++) {
        cout << num << " x " << i << "=" << num * i << endl;
    }
    return 0;
}
```

Write a program to reverse a given number using a while loop.

#include <iostream>

```
using namespace std;
int main() {
    int num, reversed=0;
    cout << "Enter a number:" << endl;
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cin >> num;

while (num > 0) {

 reversed = (reversed * 10) + num % 10;

 num = num / 10;

}

cout << "Reversed number: " << reversed;

return 0;

}

Write a program to check whether a number is prime or not using a for loop.

#include <iostream>

using namespace std;

int main() {

 int num, i;

 bool is_prime = true;

 cout << "Enter a number: ";

 cin >> num;

 if (num == 1)

 is_prime = false;

 else

 for (i = 2; i * i <= num; i++) {

 if (num % i == 0) {

 is_prime = false;

```
break;
```

```
}
```

```
}
```

```
}
```

```
if (isPrime)
```

```
cout << "num<< is a prime number;" ;
```

```
else
```

```
cout << num<< "is not a prime number;" ;
```

```
return 0;
```

```
}
```

Write a program to calculate the sum of digits of a number using a while loop.

```
#include <iostream>
```

```
using namespace std;
```

```
int main () {
```

```
int num, sum=0;
```

```
cout << "Enter a number:" ;
```

```
cin >> num;
```

```
while (num>0) {
```

```
sum += num % 10;
```

```
num /= 10;
```

```
}
```

```
cout << "sum of digits" << sum;
```

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return D;  
}
```

Write a program to print the Fibonacci series up to n terms using a for loop.

```
# include <iostream>
```

```
using namespace std;
```

```
int main ()
```

```
{ int n, t1=0, t2=1, NextTerm;
```

```
cout << "Enter the number of terms:";
```

```
cin >> n;
```

```
for (int i=1; i<=n; i++)
```

```
cout << t1 << "
```

```
next term = t1 + t2;
```

```
t1 = t2;
```

```
t2 = next term;
```

```
}
```

```
return 0;
```

```
}
```

Write a program to display the sum of even numbers between 1 and 50 using a forloop.

```
# include <iostream>
```

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using namespace std;

int main() {

int sum = 0;

for (int i = 2; i <= 50; i += 2)

sum += i;

cout << "sum of even numbers b/w 1 and 50:"

LL sum;

return 0;

}

Write a program to generate the
following pattern using a nested for
loop.

*

**

#include<iostream>

using namespace std;

int main() {

int rows = 5;

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

for (int j = 1; j <= i; j++)

cout << "*";

cout << endl;

}

return 0;

}