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Question No 3 (a)

What does looping mean? explain different loops in C++.

Looping:-

A loop is used for executing a block of statements repeatedly until a particular condition is satisfied. In C++ we have three types of basic loops.

- for loop
- while loop
- do-while loop

Different loops:-

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For loop:-

Executes a sequence of statements multiple times and abbreviates the code that manages the loop variable.

While loop:-

Repeats a statement or group of statements while a given condition is true. It tests the condition before executing the loop body.

Do-while-loop:-

Like a while statement, except that it tests the condition at the end of the loop body.

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Question NO 4(a)

What is the purpose of break and continue statements.

Break Statements:-

When a break statement is executed, the most deeply nested loop currently being executed is ended and execution picks up with the next statement after the loop.

Continue Statements:-

The continue statement ends the current operation of the loop and returns to the condition at the top of the loop. Such loops are typically used to exclude some values from calculations.

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Question No 5

What is an array? Explain One-Dimensional and Two Dimensional Arrays with examples.

Array:-

- Offers a simple way of grouping like variable for easy access.
- It is a group of elements having same data type.
- An array is a collective name given to a group of similar quantities.
- Arrays in C share a few common attributes
 - Variable in an array share the same name
 - Variable in an array share the same data type.

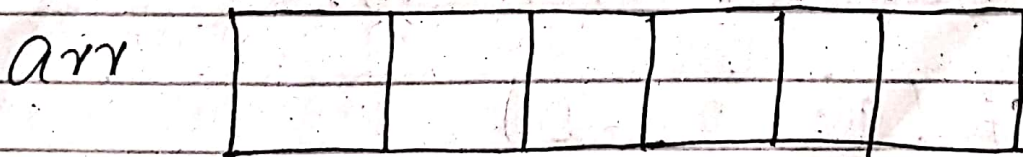
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- Individual variables in an array are called elements.
- Elements in an array are accessed with an index number.

Type of Arrays:-

One - Dimensional:-

Conceptually you can think of a one dimensional array as a row where elements are stored one another.



Example:-

```
#include <stdio.h>
void odd_or_even (int a);
```


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```
int main()
```

```
{
```

```
int my-arr[] = {13, 56, 71, 38, 93};
```

```
for (i=0; i<5; i++)
```

```
{
```

```
// passing one element at a time  
to add-or-even() function
```

```
odd-or-even(my-arr[i]);
```

```
}
```

```
// signal to operating system  
program ran find
```

```
return 0;
```

```
}
```

```
void odd-or-even(int a)
```

```
{
```

```
if (a % 2 == 0)
```

```
{
```

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

```
}
```

```
else
```

```
{
```

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```
printf ("%d is odd\n", a);  
}  
}
```

Two-Dimensional..

An array of arrays is known as 2D array. The two dimensional array in C programming is also known as matrix. A matrix can be represented as a table of rows and column.

Example:

```
#include <stdio.h>  
int main() {
```

```
int disp [2][3];
```

```
int i, j;  
for (i=0; i<2; i++) {
```

```
for (j=0; j<3; j++) {
```


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```
Print ("Enter value for disp [%d] [%d]:"  
      i, j);  
scanf ("%d", &disp [i][j]);  
}
```

```
}
```

```
Print ("Two Dimensional array elements  
      \n");  
for (i = 0; i < 2; i++) {
```

```
    for (j = 0; j < 3; j++) {
```

```
        printf ("%d", disp [i][j]);
```

```
        if (j == 2) {
```

```
            Print ("\n");
```

```
        }
```

```
    }
```

```
}
```

```
return 0;
```

```
}
```


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Question NO 1(a)

What is the purpose of If Statement? Discuss ~~forms~~ its two different forms with examples.

Purpose of IF-Statement:-

The if statement is used to check a condition and if the condition is true, we run a block of statement (called the if-block) else we process another block of statements (called the else-block). The else clause is optional.

Two Different forms of IF-Statements:-

Nested IF else statement:-

When an IF else statement is present inside the body of another "If"

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"else" then this is called nested
if else.

Example

```
#include <stdio.h>
int main()
```

```
{
```

```
int var1, var2;
```

```
printf("input the value of var1:");
```

```
scanf("%d", &var1);
```

```
printf("input the value of var2:");
```

```
scanf("%d", &var2);
```

```
if (var1 == var2)
```

```
{
```

```
printf("var1 is not equal to var2\n
```

```
// nested if else
```

```
if (var1 > var2)
```

```
{
```

```
printf("var1 is greater than  
var2\n");
```

```
}
```

```
else
```

```
{
```

```
printf("var2 is greater  
than var1\n");
```

```
}
```


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```
}  
else  
{  
    printf("var1 is equal to  
    var2\n");  
}  
return 0;  
}
```

Else-IF statement:-

The else if statement is useful when you need to ~~back~~ check multiple condition within the program, nesting of If-else blocks can be avoided using else if statement.

Example:-

```
#include <stdio.h>  
int main()
```

```
{
```

```
    int var1, var2;
```

```
    printf("input the value of var1:");  
    scanf("%d", &var1);
```

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```
printf("input the value of var2:");  
scanf("%d", &var2);  
if (var1 != var2)  
{  
    printf("var1 is not equal to var2  
    \n");  
}  
else if (var1 > var2)  
{  
    printf("var1 is greater than  
    var2 \n");  
}  
else if (var2 > var1)  
{  
    printf("var2 is greater var1 \n");  
}  
else  
{  
    printf("var1 is equal to var2  
    \n");  
}  
return 0;
```


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Question NO 2(a)

What are the logical operators?
Explain them.

Logical operators:-

Operators:-

~~1~~ ~~2~~ 3. 4

Description:-

Called logical AND operators. If both the operands are non-zero then condition become true.

Example:-

$(A \& \& B)$ is false

Operators-

||

Description:-

Called logical OR Operators - If both any of the two operands is non-zero then condition become true.

Example:-

$(A || B)$ is true.

Operator:-

|

Description:-

Called logical NOT Operator use to reverse the logical state of

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Its operand. If a condition is true then logical NOT operator will make it false.

Example:-

!(A && B) is true.

Question NO 18 (b)

Write a C++ program to read two numbers from keyboard, and then find the LARGEST number of them.

Ans:-

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

```
int main() {
```

```
    int a;
```

```
    int b;
```

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```
cout << "enter two numbers:";  
cin >> a >> b;
```

```
if (a > b)
```

```
    cout << "a is greater";
```

```
else
```

```
    cout << "b is greater"; }
```

Question NO 2 (b)

Write a C++ program to get Temperature in Fahrenheit F and then find the Atmosphere according to the below rules:-

Ans:-

```
#include <iostream>  
using namespace std;  
int main() {
```


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```
int f;
```

```
cout << "enter the F.:";  
cin >> f;
```

```
if (f > 30) {
```

```
    cout << "cool"; }
```

```
else if (f > 30) {
```

```
    cout << "warm"; }
```

```
else if (f > 35)
```

```
{
```

```
    cout << "tolerate"; }
```

```
else if (f > 3540)
```

```
{
```

```
    cout << "very hot"; }
```

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Question No 3(b)

Write a C++ Program to read a number from keyboard and then determine whether it is even or odd number?

Ans:-

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

```
int main()
```

```
{
    int n;
```

```
    cout << "Enter integer:";
```

```
    cin >> n;
```

```
    if (n % 2 == 0)
```

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

```
    else
```

```
        cout << "the number is odd";
```

```
}
```


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Question no 4(b)

Write a C++ Program to find the sum of the following numbers.

1 + 2 + 3 + ... + 10

Ans:-

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

```
int main()
{
```

```
    int i, sum = 0;
```

```
    cout << "\n\n Find the first 10\n natural numbers: \n";
```

```
    cout << "----- \n";
```

```
    cout << "The natural numbers are\n";
```

```
    for (i = 1; i <= 10; i++)
```

```
    {
        cout << i << " ";
    }
```

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sum = sum + i ;

}

cout << "\n The sum of natural
numbers : " << sum << endl ;

}