

# IAP LAB 9

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BY

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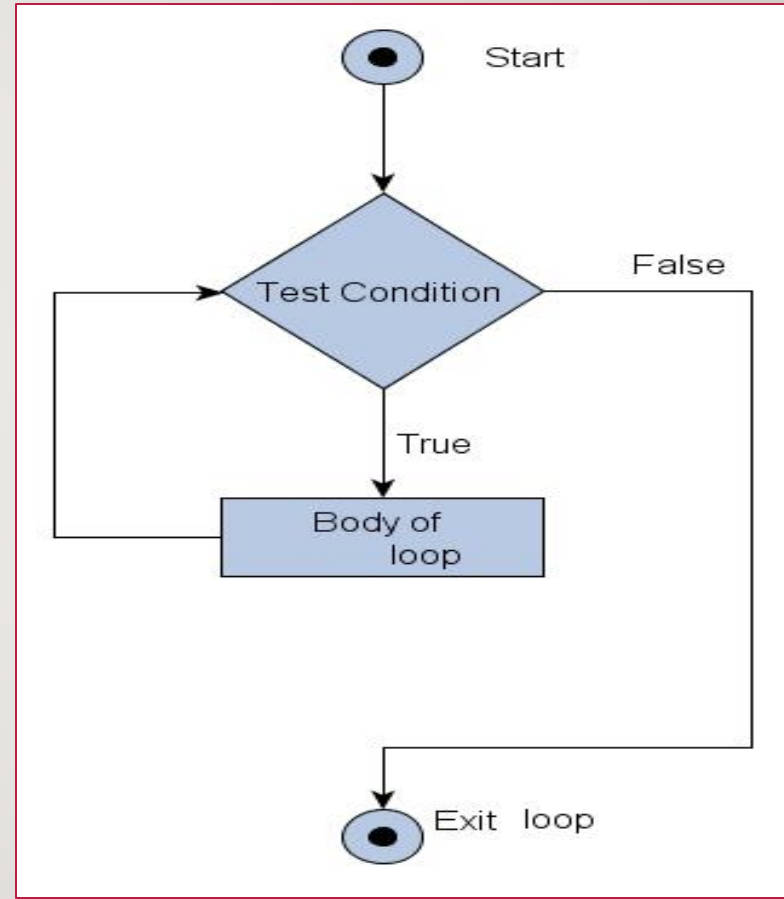
# LOOP STATEMENT

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In C++

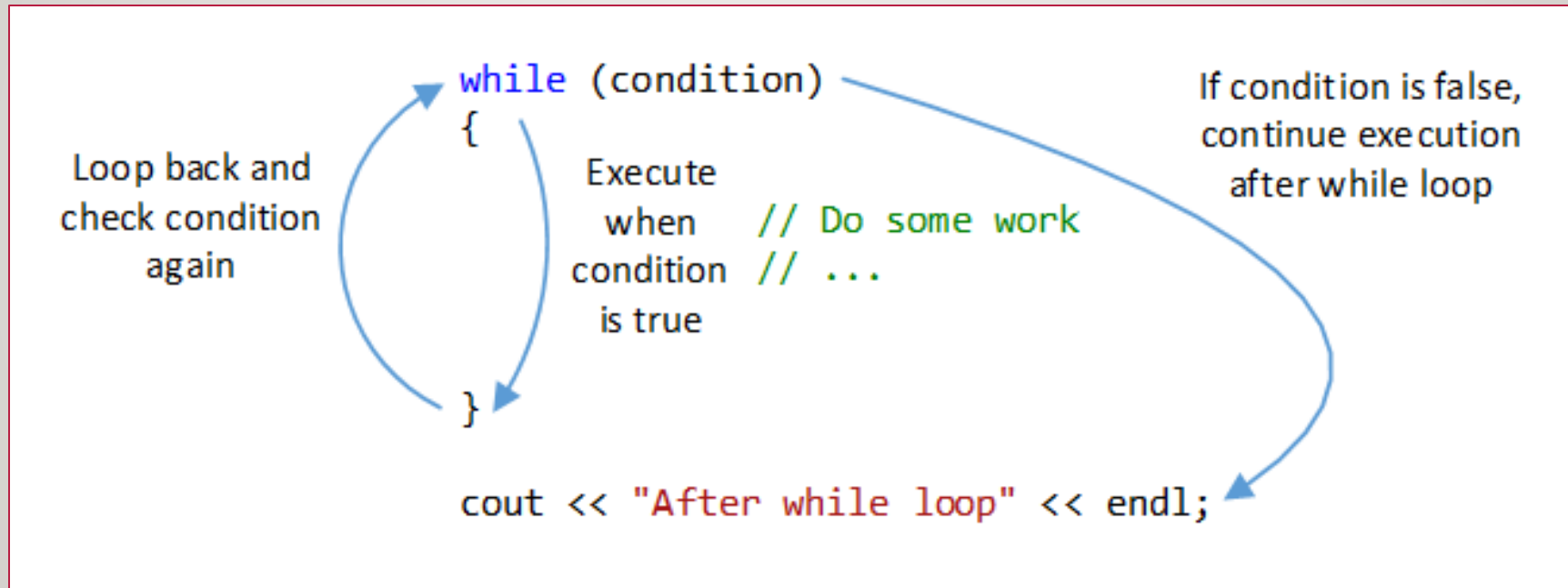
### 3 LOOP STATEMENT

- Loops are used in programming to repeat a specific block until some end condition is met.
- Loop statement kinds:
  1. **while** statement.
  2. **for** statement.
  3. **do while** statement.



## 4 WHILE STATEMENT

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## 5 WHILE STATEMENT

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```
// loop 5 times
int counter = 0;

while (counter < 5)
{
    // do some work
    counter++;
}
```

# WHILE LOOP EXAMPLE I

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Find the sum and average of student marks

## 7 EXAMPLE I SOLUTION STEP I

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```
int studentNumber = 10;

int counter = 1;
while (counter <= studentNumber)
{
    int grade;
    cin >> grade;

    //counter = counter + 1;
    counter++;
}
```

## 8 EXAMPLE 1 SOLUTION STEP 2

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```
int studentNumber = 10;
int sum = 0;
int counter = 1;
while (counter <= studentNumber)
{
    int grade;
    cin >> grade;
    sum = sum + grade;
    //counter = counter + 1;
    counter++;
}
cout << "The Sum: " << sum << endl;
```



## 9 EXAMPLE I SOLUTION STEP 3

```
int studentNumber = 10;
double sum = 0;
int counter = 1;
while (counter <= studentNumber)
{
    int grade;
    cin >> grade;
    sum = sum + grade;
    //counter = counter + 1;
    counter++;
}
cout << "The Sum: " << sum << endl;
cout << "The Average: " << sum / studentNumber << endl;
```

## 10 EXAMPLE I SOLUTION STEP 4

```
int studentNumber;
cout << "Please Enter student number: ";
cin >> studentNumber;
double sum = 0;
int counter = 1;
while (counter <= studentNumber)
{
    int grade;
    cout << "Enter grade " << counter << " : ";
    cin >> grade;
    sum = sum + grade;
    //counter = counter + 1;
    counter++;
}
cout << "The Sum: " << sum << endl;
cout << "The Average: " << sum / studentNumber << endl;
```



# WHILE LOOP EXAMPLE 2

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Find the maximum mark for the previous example

## I2 EXAMPLE 2 SOLUTION

```
int studentNumber;
cout << "Please Enter student number: ";
cin >> studentNumber;
double sum = 0, max = 0;
int counter = 1;
while (counter <= studentNumber)
{
    int grade;
    cout << "Enter grade " << counter << " : ";
    cin >> grade;
    sum = sum + grade;
    if (grade > max)
    {
        max = grade;
    }
    //counter = counter + 1;
    counter++;
}
cout << "The Sum: " << sum << endl;
cout << "The Average: " << sum / studentNumber << endl;
cout << "The Max: " << max << endl;
```

# HOMEWORK I

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Write a program that finds the minimum number between list of student marks

## HOMEWORK 2

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Write a program that counts and prints just the even numbers of list of given numbers