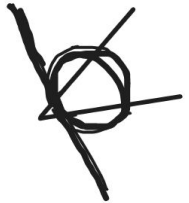
PDS Tutorial

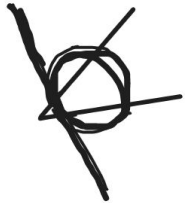
if-else statement
loops



PDS Tutorial

if-else statement

loops



if statement

Execute a block of code only if a **condition** is true

```
if (condition)
{
    do something;
    and something;
    done;
}
```

if statement

Execute a block of code only if a **condition** is true

```
if (condition)
{
    do something;
    and something;
    done;
}
```

Evaluates to boolean (true or false)

Executed only if condition is **true**

if-else statement

Execute a block of code if a **condition** is true. If false, execute something else

```
if (condition)
{
    do something;
    and something;
} else
{
    do something
}
```

if-else statement

Execute a block of code if a **condition** is true. If false, execute something else

```
if (condition)
{
    do something;
    and something;
} else
{
    do something;
}
```

Evaluates to boolean (true or false)

Executed if condition is **true**

Executed if condition is **false**

if-else-if statement


```
if (condition1)
{
   do something;
} else if (condition2)
{
   do something;
} else if (condition3)
{
   do something;
} ... else {
   do something;
}
```

if-else-if statement

```
if (condition1)
{
    do something;
} else if (condition2)
{
    do something;
} else if (condition3)
{
    do something;
} ... else {
    do something;
}
```

Executed if condition1 is **true**

Executed if condition1 is **false** and condition2 is **true**

Executed if condition1 and condition2 are **false** and condition3 is **true**

Executed if all above conditions are **false**

1) Take age of user as input and print if (s)he is eligible to vote

Input - 20

Output - Eligible to vote

Input - 7

Output - Not eligible to vote

1) Take age of user as input and print if (s)he is eligible to vote


```
#include<stdio.h>
int main(){
    int age;
    scanf("%d", &age);
    if(age >= 18){
        printf("Eligible to Vote");
    }
    else{
        printf("Not eligible to Vote");
    }
    return 0;
}
```

2) Check if a number input by user is divisible by 5 and 11

Input - 55

Output - Number is divisible by 5 and 11

Input - 65

Output - Number is not divisible by 5 and 11

2) Check if a number input by user is divisible by 5 and 11


```
#include <stdio.h>
int main(){
    int num;
    scanf("%d", &num);
    if((num % 5 == 0) && (num % 11 == 0)){
        printf("Number is divisible by 5 and 11");
    }
    else{
        printf("Number is not divisible by 5 and 11");
    }
    return 0;
}
```

3) WAC program to check whether triangle is valid if sides are given.

Input

First side: 7

Second side: 10

Third side: 5

Output

Triangle is valid

3) WAC program to check whether triangle is valid if sides are given.


```
#include <stdio.h>
int main(){
    int side1, side2, side3;
    scanf("%d%d%d", &side1, &side2, &side3);
    if((side1 + side2) > side3 && (side2 + side3) > side1
    && (side1 + side3) > side2)
        printf("Triangle is valid.");
    else
        printf("Triangle is not valid.");
    return 0;
}
```

4) Print the maximum among three numbers input by user

Input -
num1: 10
num2: 20
num3: 15

Output - Maximum is: 20

4) Print the maximum among three numbers input by user


```
#include <stdio.h>
int main(){
    int num1, num2, num3, max
    scanf("%d%d%d", &num1, &num2, &num3);
    if((num1 > num2) && (num1 > num3))
        max = num1;
    else if(num2 > num3)
        max = num2;
    else
        max = num3;
    printf("Maximum among all three numbers = %d", max);
}
```

5) Write a C program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer, calculate percentage and grade according to given conditions:

If percentage >= 90% : Grade A

If percentage >= 80% : Grade B

If percentage >= 70% : Grade C

If percentage >= 60% : Grade D

If percentage >= 40% : Grade E

If percentage < 40% : Grade F

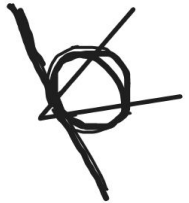
```
int phy, chem, bio, math, comp;
float per;
scanf("%d%d%d%d%d", &phy, &chem, &bio, &math,
&comp);
per = (phy + chem + bio + math + comp) / 5.0;
printf("Percentage = %.2f\n", per);

if(per >= 90)
    printf("Grade A");
else if(per >= 80)
    printf("Grade B");
else if(per >= 70)
    printf("Grade C");
else if(per >= 60)
    printf("Grade D");
else if(per >= 40)
    printf("Grade E");
else
    printf("Grade F");
```

PDS Tutorial

if-else statement

loops



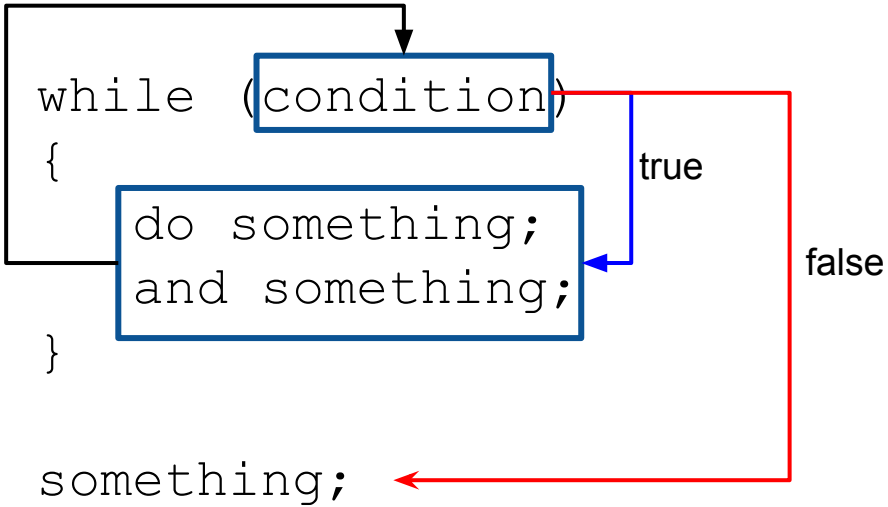
while loop

Execute a block of code repeatedly while **condition** is true

```
while (condition)
{
    do something;
    and something;
}
```

while loop: Control flow

Execute a block of code repeatedly while **condition** is true



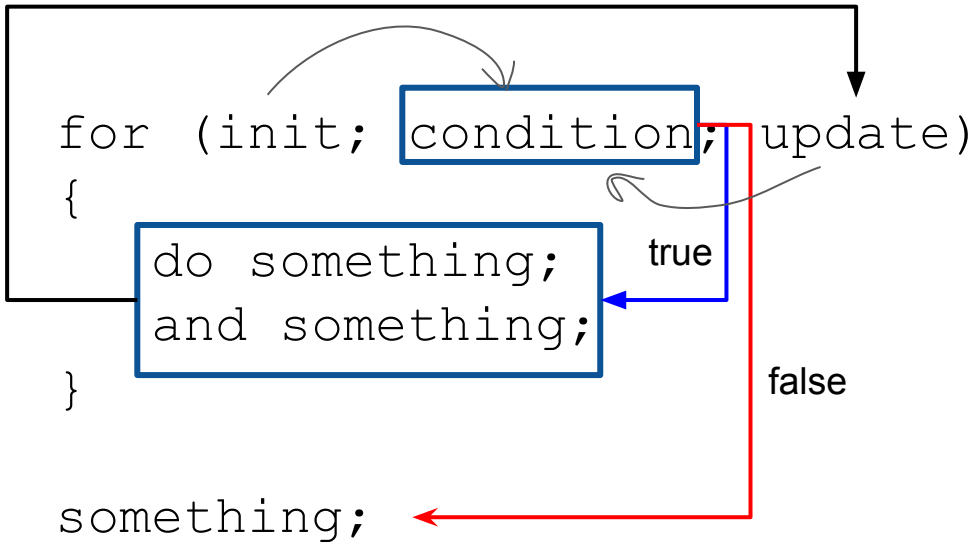
for loop

Execute a block of code repeatedly while **condition** is true

```
for (init; condition; update)
{
    do something;
    and something;
}
```

for loop: Control flow

Execute a block of code repeatedly while **condition** is true



break

Terminates current loop

```
while (condition)
{
    ...
    if(something)
        break;
    ...
}

...
```

```
for (init; condition; update)
{
    ...
    if(something)
        break;
    ...
}

...
```

continue

Skips the current iteration

```
while (condition)
{
    ...
    if(something)
        continue;
    ...
}
```

```
for (init; condition; update)
{
    ...
    if(something)
        continue;
    ...
}
```

1) How many times "Hello World" gets printed?


```
#include<stdio.h>
int main()
{
    int x;
    for(x=0; x<=10; x++)
    {
        if(x < 5)
            continue;
        else
            break;
        printf("Hello World");
    }
    return 0;
}
```

A. Infinite times

B. 5 times

C. 10 times

D. None of the above

1) How many times "Hello World" gets printed?

```
#include<stdio.h>
int main()
{
    int x;
    for(x=0; x<=10; x++)
    {
        if(x < 5)
            continue;
        else
            break;
        printf("Hello World");
    }
    return 0;
}
```

A. Infinite times

B. 5 times

C. 10 times

D. None of the above

Ans: 0 times

2) How many times does "Hi" get printed?

```
#include <stdio.h>
void main()
{
     int i = 0, j = 0;
     for (i = 0;i < 5; i++)
     {
          for (j = 0;j < 4; j++)
          {
               if (i > 1)
                    break;
          }
          printf("Hi \n");
     }
}
```

A. 5

B. 3

C. 7

D. None of the above

2) How many times does "Hi" get printed?

```
#include <stdio.h>
void main()
{
    int i = 0, j = 0;
    for (i = 0;i < 5; i++)
    {
        for (j = 0;j < 4; j++)
        {
            if (i > 1)
                break;
        }
        printf("Hi \n");
    }
}
```

A. 5 (Answer)

B. 3

C. 7

D. None of the above

3) How many times does "Hi" get printed?

```
#include <stdio.h>
void main()
{
     int i = 0, j = 0;
     for (i = 0;i < 5; i++)
     {
          for (j = 0;j < 4; j++)
          {
               if (i > 1)
                    break;
               printf("Hi \n");
          }
     }
}
```

A. 5

B. 2

C. 8

D. None of the above

3) How many times does "Hi" get printed?

```
#include <stdio.h>
void main()
{
    int i = 0, j = 0;
    for (i = 0;i < 5; i++)
    {
        for (j = 0;j < 4; j++)
        {
            if (i > 1)
                break;
            printf("Hi \n");
        }
    }
}
```

A. 5

B. 2

C. 8 (Answer)

D. None of the above