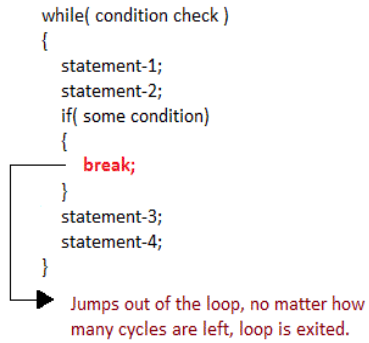
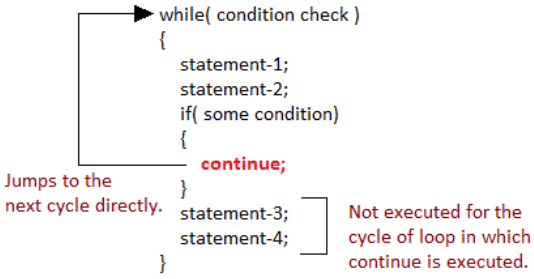
Department of Electrical and Computer Engineering, NSU
CSE 115L: Fundamentals of Computer Programming
Week 3 (LOOP)

Loop: Loop is generally used for performing a same task, a fixed number of times.

For Loop:	**While Loop**	**Do-while Loop**

// same task fixed number of times
#include<stdio.h>
 	
int main()
{
int i;
 	
for(i=0; i<5 ; i++)
{
printf("Repeating %d times!\n",i);
}
 	
return 0;
}
	//10 random number generator
	#include<stdio.h>
	
	int main()
	{
	int i=1;
	
	while(i<=10)
	{
	int num= rand()%10+1;
	printf("%d. Random number: %d\n",i,num);
	i++;
	}
	
	return 0;
	}
		// Taking input only even numbers
		#include<stdio.h>
		
		int main()
		{
		int num;
		
		do{
		printf("Enter a number:");
		scanf("%d",&num);
		
		}while(num%2==0);
		
		return 0;
		}

[NOTES: i++ is the same as i=i+1]

Break	**Continue**
	

Ex-8 break example	Ex-9 Continue example

#include<stdio.h>
int main()
{
int i;
for(i=10; i>=0; i=i-2)
{
if(i==6){
break;
}
else
printf("%d ",i);
}
return 0;
}
	#include<stdio.h>
	int main()
	{
	int i;
	for(i=10; i>=0; i--)
	{
	if(i==6 || i==3)
	{
	continue;
	}
	else
	printf("%d ",i);
	}
	}

Task(10 marks)

1. Write a program using while loop that ask the user to about how many number he/she wants to enter. Your task is to take input those many number and calculate their sum.

2. Print summation of the following series: 1 + 1/2 +1/3 + ¼+ 1/5 + ... + 1/n where integer n will be input to your program.

3. Write a program that calculates the factorial of number N using while loop and prints the value.

4. Take an integer n as input from the user. Write a program that displays the Fibonacci series up to n term. In Fibonacci series, the first two numbers are 0 and 1. The remaining numbers are sum of the previous two.
Enter a number: 10 The first 8 Fibonacci numbers are: 0 1 1 2 3 5 8 13 21 34

5. Print the following patterns using nested loop if user input is 5.

Pattern 1:

```
    *
   * *
  * * *
 * * * *
* * * * *
```

Pattern 2:

```
5 4 3 2 1
5 4 3 2
5 4 3
5 4
5
```

HW

1. Write a program to find the GCD (Greatest Common Divisor) of two positive integer inputs.
Enter two integers: 45 120 GCD: 15

2. Write a program that will take a positive integer as input and will display the sum of all the digits as output. If the input is 135, then your program should display 9.