```java
//Initialization part is optional
public class Eg1 {

	public static void main(String[] args) {

		int i = 0;
		for (; i < 5; i++) {
			System.out.println(i);
		}
	}
}
```

```
0
1
2
3
4
```

```java
//Multiple Statements at initialization
public class Eg2 {

	public static void main(String[] args) {

		int i = 0;
		for (System.out.println("Hello Java"), System.out.println("Hello Python"); i < 10; i++)
{
			System.out.println(i);
		}
	}
}
```

```
//Can Take only single Initialization
public class Eg3 {

	public static void main(String[] args) {

		for (int i = 0, j =0; i < 10 && j < 10; i++, j++) {
			System.out.println(i + " " + j);
		}
	}
}
```

```
0 0
1 1
2 2
3 3
4 4
5 5
6 6
7 7
8 8
9 9
```

```java
//condition part is optional, works like infinity loop
public class Eg4 {

	public static void main(String[] args) {

		//works infinity
//		for (int i = 5; ; i++) {
//			System.out.println(i);
//		}

		//dead code
//		for (int i = 0; false; i++) {
//			System.out.println(i);
//		}

		// Type mismatch: cannot convert from void to boolean
//		for (int i = 0; System.out.println(i);; i++) {
//			System.out.println(i);
//		}
	}
}
```

```java
//increment/decrement part is optional works infinity loop
public class Eg5 {

	public static void main(String[] args) {

		for (int i = 0; i < 5; ) {
			System.out.println(i);
		}
	}
}
```

```
0
0
Infinity...
```

```
//Here JVM will evaluate the variable expression
public class Eg6 {

	public static void main(String[] args) {

		//Here JVM will evaluate the variable expression
		System.out.println("Outside ForLoop");
		for (int i = 0; i <= 5 || i >= 10; i++) {
			System.out.println(i + " In ForLoop");
		}
		System.out.println("Inside ForLoop");

	}
}
```

```
Outside ForLoop
0 In ForLoop
1 In ForLoop
2 In ForLoop
3 In ForLoop
4 In ForLoop
5 In ForLoop
Inside ForLoop
```

```
public class Eg7 {

public static void main(String[] args) {


//Here Compiler will evaluate the constant expression, not variable expression, here constant
expression is true, so we get Unreachable code
System.out.println("Ouside ForLoop");
for (int i = 0; true; i++) {
System.out.println(i + " In ForLoop");
}
//System.out.println("Inside ForLoop"); // Unreachable code, bcoz loop will move infinity times
//int a = 10; // Unreachable code

}
}
```

```
416215 In ForLoop
416216 In ForLoop
416217 In ForLoop
```

```
//increment/decrement  part is optional
public class Eg8{

public static void main(String[] args) {

//works like infinity loop
//		for(int i=0; i<5;) {
//			System.out.println(i); // 0 0 0 infinity...
//		}

//use manually increment part
for(int i=5; i<10;) {
System.out.println(i); // 5 6 7 8 9
i+=1;
}

5
6
7
8
9

//multiple statements in increment part
for (int i = 0; i < 5; System.out.println("Hello Java"), System.out.println("Hello Python")) {
System.out.println(i);
i++;
}
}

}

0
Hello Java
Hello Python
1
Hello Java
Hello Python
2
Hello Java
```

```
Hello Python
3
Hello Java
Hello Python
4
Hello Java
Hello Python
```

```java
public class Eg10 {

	public static void main(String[] args) {

		int i =0;
		while (true) {
			System.out.println(i); // infinite loop
			i++;
		}
		// System.out.println("Hello Java"); //Unreachable code
	}
}
```

```java
//do block will execute at least one time
public class Eg11 {

	public static void main(String[] args) {

		do {
			System.out.println("Do Block");
		} while (false);
	}
}
```

```
Do Block
```

```
//in for loop conditional part is optional, but not in while and do while loop
public class Eg12 {

	public static void main(String[] args) {

		int i = 0;
		do {
			System.out.println(i);
			i++;
		} while (i < 5);
	}
}
```

```
0
1
2
3
4
```