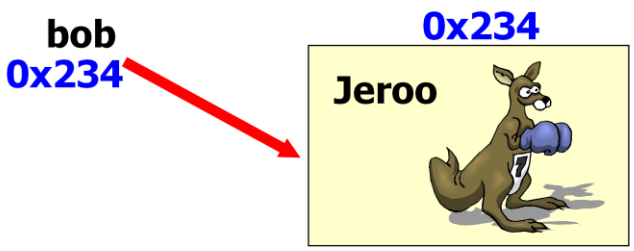
Jeroo Loops

Object Instantiation

Jeroo bob = new Jeroo();



bob is a reference variable that refers to a Jeroo object which is located at (0,0).

constructors

```
Jeroo bob = new Jeroo();
        //creates a Jeroo at location (0,0)

Jeroo bob = new Jeroo(5,15);
        //creates a Jeroo at location (5,15)

Jeroo jim = new Jeroo(5);
        //creates a Jeroo at (0,0) with 5 flowers

Jeroo sue = new Jeroo(2,11,9);
        //creates a Jeroo at (2,11) with 9 flowers
```

constructors

```
Jeroo jan = new Jeroo(11,7,WEST);
        //creates a Jeroo at location 11,7
        //that is facing WEST


Jeroo dan = new Jeroo(8,2,EAST,3);
        //creates a Jeroo at location 8,2
        //that is facing EAST with 3 flowers
```

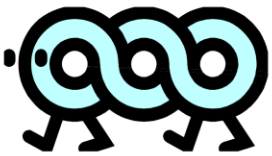
The while loop

While Loop Definition

A while loop is a block of code associated with a condition. As long as the condition is true, the loop will continue to run the block of code.

the while loop

```
while( boolean condition placed here )
{
  do something 1;
  do something 2;
}
```



As long as the condition is true, `do something 1` and `do something 2` will occur.

If the condition is false, `do something 1` and `do something 2` do not occur.

while loop

checks condition first

```
int run = 0;          //0 – start

while(run<5)          //1 - stop
{
  run = run + 1;      //2 - increment
  out.println(run);   //3 - code
}
```

OUTPUT
1
2
3
4
5

As long as run is less than 5 (`run<5`), the loop will iterate. For each iteration, run is increased by 1 and run is displayed.

run begins with the value 0

Iteration 1 – run = 0 + 1 print(1)

Iteration 2 – run = 1 + 1 print(2)

Iteration 3 – run = 2 + 1 print(3)

Iteration 4 – run = 3 + 1 print(4)

Iteration 5 – run = 4 + 1 print(5)

The loop condition fails when run reaches the value 5 as 5 is not less than 5.

while loop

```
int run = 7;              //0 - start
while(run<10)             //1 - stop
{
  out.println(run);       //2- code
  run++;                  //3 - increment
}
```

What is the final value of run?

OUTPUT
7
8
9

As long as run is less than 10 (`run<10 )`, the loop iterates. For each iteration, run is displayed and then increased by 1.

The loop condition fails when run reaches the value 10 as 10 is not less than 10.

run begins with the value 7

Iteration 1 – print(7) run = 7 + 1

Iteration 2 – print(8) run = 8 + 1

Iteration 3 – print(9) run = 9 + 1

The loop condition fails when run reaches the value 10 as 10 is not less than 10.

What can a Jeroo do?

Jeroo

frequently used methods

Name	Use
hop()	move one step
hop(count)	move count steps
pick()	pick up a flower
plant()	plant a flower at this location
toss()	toss a flower one spot ahead
give(dir)	give a flower to a jeroo in direction dir
turn(dir)	turn in a direction dir

Jeroo

frequently used methods

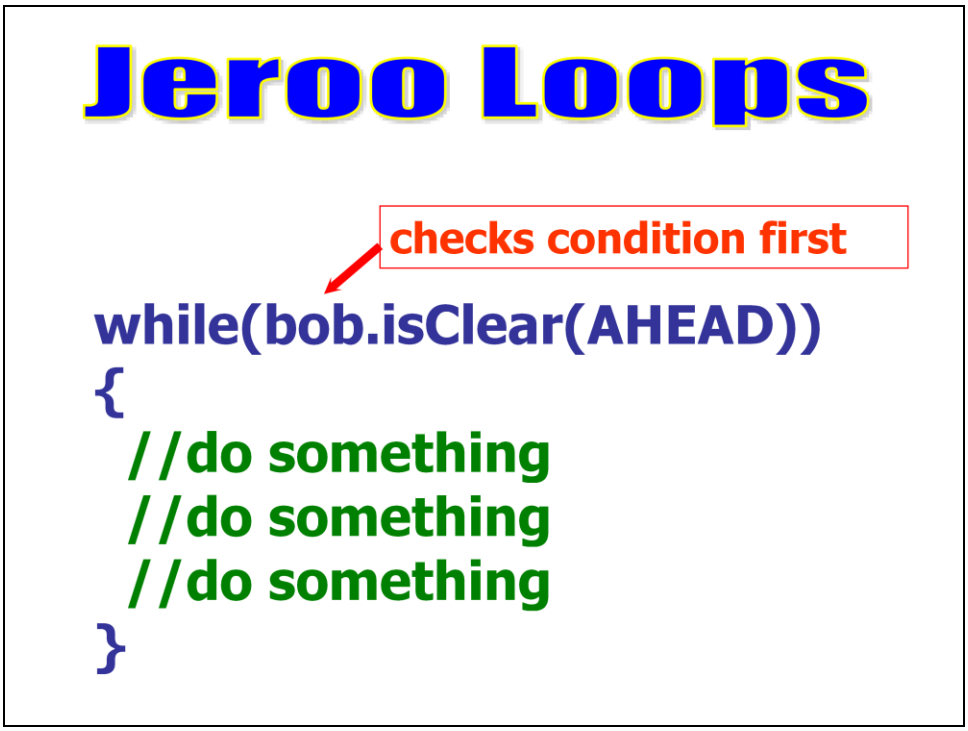
Name	Use
hasFlower()	does this Jeroo have a flower
isFacing(comp_dir)	is this Jeroo facing comp_dir
isFlower(rel_dir)	is there a flower in spot in rel_dir
isJeroo(rel_dir)	is there a Jeroo in spot in rel_dir
isNet(rel_dir)	is there a net in spot in rel_dir
isWater(rel_dir)	is there water in spot in rel_dir
isClear(rel_dir)	is the spot in rel_dir empty

These methods are boolean; they return true or false.

Jeroo Loops

checks condition first

```
while(bob.isClear(AHEAD))
{
  //do something
}
```

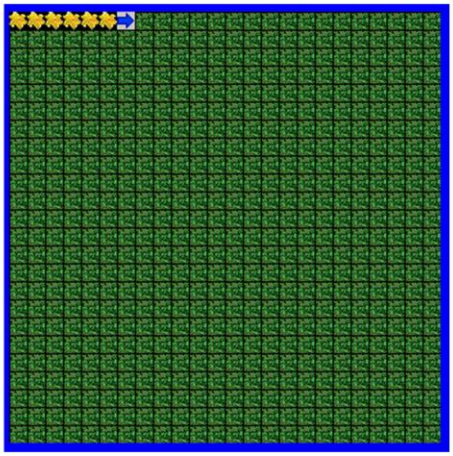


As long as the area ahead of bob is clear, the loop will continue to execute the statements inside. Once the area ahead of bob is not clear, the loop will terminate.

Jeroo Loops

main method | Jeroo methods

```
method main()
{
  Jeroo loopy = new Jeroo(6);
  loopy.plant();
  loopy.hop();
  loopy.plant();
  loopy.hop();
  loopy.plant();
  loopy.hop();
  loopy.plant();
  loopy.hop();
  loopy.plant();
  loopy.hop();
  loopy.plant();
  loopy.hop();
}
```



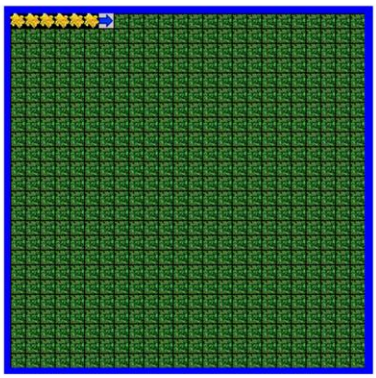
No loop used.

Open no_loop.jsc

Jeroo Loops

main method | Jeroo methods

```
method main()
{
  Jeroo loopy = new Jeroo(6);
  while (loopy.hasFlower())
  {
      loopy.plant();
      loopy.hop();
   }
}
```



Single loop used.

Open single_loop.jsc

Loops with Ifs

```
while(bob.isClear(AHEAD))
{
  bob.hop();
  if( bob.isWater(AHEAD) )
  {
   bob.turn(RIGHT);
  }
}
```

This code will check to see if it is clear ahead. If it is, the Jeroo will move forward one cell. Then, the Jeroo will check to see if it can move ahead again. If not, the Jeroo will go ahead and turn to avoid the water.

Make a Jeroo that will stay in the same row and continue to bounce off the walls.

Open nested_loop.jsc

Start work on Loop Labs