



10/16/07

# >>> Overview

- \* parameters
- \* returns
- \* graphics



# >>> Parameters

Parameters are easy in Python once you know Java's. Simply remove all types from the method header and do the normal conversion.

## print\_sum.py

```
1 def print_sum(x,y):  
2     print str(x+y)  
3  
4 sum(2,3)
```

## PrintSum.java

```
1 public static void printSum(int x, int y) {  
2     System.out.println(x+y);  
3 }  
4
```



# >>> Defaults

Unlike Java, Python's parameters can have default values to use when one is not given.

## print\_range.py

```
1 def print_range(start=1, end=1, interval=1, sep=" "):
2     for i in range(start, end, interval):
3         print i + sep
4     print end
5
6 print range(0,7)
7 print_range(1,7,1,", ")
```



# >>> Keywords

When calling a function with a number of parameters with defaults you can modify particular parameters with a keyword so that you do not need to specify all preceding parameters.

## print\_range.py

```
1 def print_range(start=1,end=1,interval=1,sep=" "):
2     for i in range(start,end,interval):
3         print i + sep
4     print end
5
6 print range(0,7)
7 print_range(1,7,1,", ")
8
9 print_range(end=7,sep=" ", " ")
```



# >>> Star box

```
scott @ yossarian ~ $ python stars.py
```

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

```
// CSE 142 Autumn 2007, Marty Stepp
//
// This program prints many lines and boxes of stars in a loop.
// This version uses for loops and also shows an advanced concept:
// The String data type. (hasn't been covered in lecture yet)
//
public class StarsWithLoops {
    public static void main(String[] args) {
        // the original program's output (lines and boxes of stars)
        drawLineOfStars(13);
        drawLineOfStars(7);
        drawLineOfStars(35);
        drawBox(5, 4);
        drawBox(10, 6);

        System.out.println();

        // additional output: 3x6, 4x8, 5x10, ..., 10x20 boxes
        for (int i = 3; i <= 10; i++) {
            drawBox(2 * i, i);
        }
    }

    // Prints the given character the given number of times.
    // String is the data type for text characters and messages in Java.
    public static void printCharacter(String character, int times) {
        for (int i = 1; i <= times; i++) {
            System.out.print(character);
        }
    }

    // Draws a line of stars with the given length.
    public static void drawLineOfStars(int stars) {
        for (int i = 1; i <= stars; i++) {
            System.out.print("*");
        }
        System.out.println();
    }

    // Draws a box of stars with the given dimensions.
    public static void drawBox(int width, int height) {
        // top
        drawLineOfStars(width);

        // middle
        for (int line = 1; line <= height - 2; line++) {
            System.out.print("*");
            printCharacter(" ", width - 2);
            System.out.println("*");
        }

        // bottom
        drawLineOfStars(width);
    }
}
```



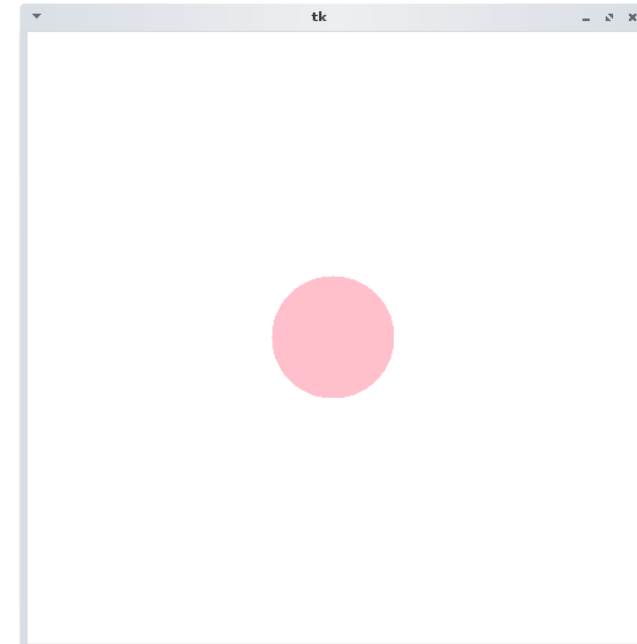
# >>> Graphics

Graphics work similar than in Java. The methods are different though.

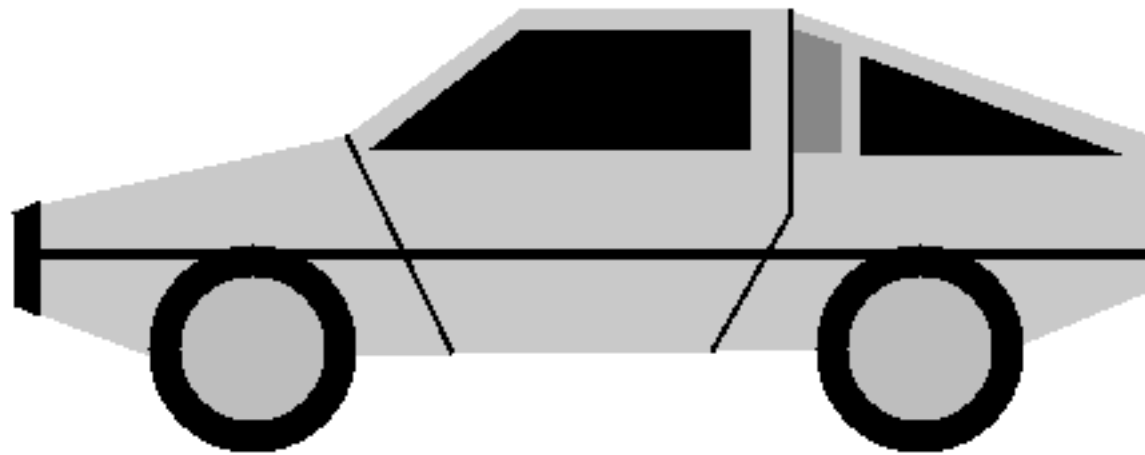
## pink.py

```
1 from drawingpanel import *
2
3 panel = DrawingPanel(500,500)
4 g = panel.getGraphics()
5
6 #draw stuff here
7 g.create_oval(200,200,300,300,fill="pink",width=0)
8
9 panel.mainloop()
```

```
g.create_line(x0,y0...xN,yN,...)
g.create_oval(x0,y0,x1,y1,...)
g.create_polygon(x0,y0...xN,yN,...)
g.create_rectangle(x0,y0,x1,y1,...)
g["bg"]=<color>
```



>>> A better car...







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