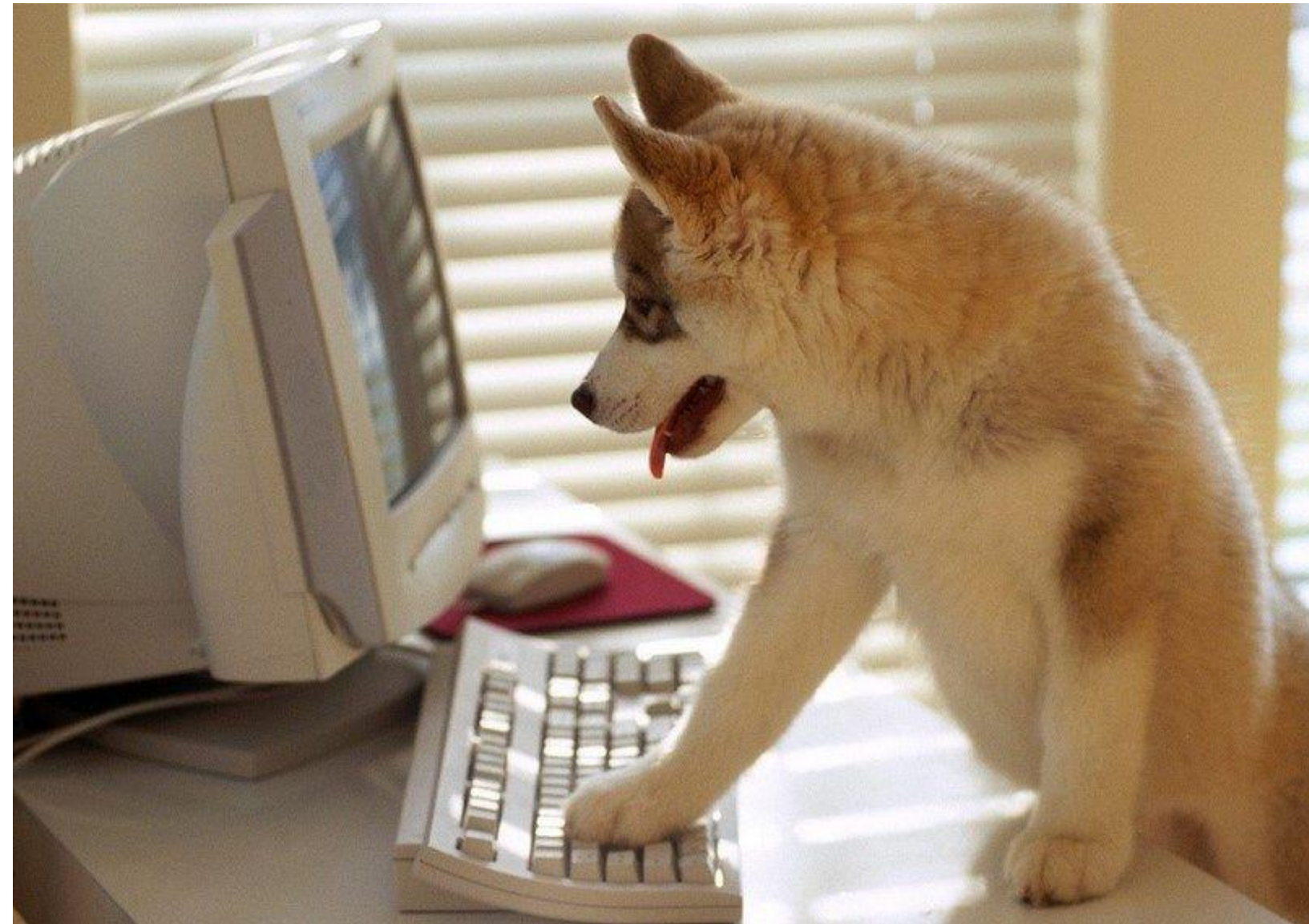# Programming Tutorial [Basics]

Style Conventions

Image Source: https://memegenerator.net/instance/76894967/god-kills-a-kitten-every-time-you-violate-code-style-god-kills-a-kitten

Indentation

Good:

```
public class GoodCode{
    public static void main(String[]
                            args){
        Scanner scan = new
                    Scanner(System.in);
        int a = scan.nextInt();
        int b = scan.nextInt();

        if(a>b){
            System.out.println(a);
        }
        else{
            System.out.println(b);
        }

    }
}
```

Bad:

```
public class BadCode{
public static void main(String[] args){
Scanner scan = new Scanner(System.in);
int a = scan.nextInt();
int b = scan.nextInt();
if(a>b){
System.out.println(a);
}
else{
System.out.println(b);
}}}
```

Naming

Good:

```
public class GoodCode{
    public static void main(String[]
                           args){

        Scanner scan = new
                    Scanner(System.in);
        double width = scan.nextDouble();
        double height = scan.nextDouble();

        double area = computeArea(width,
                                height);

        System.out.println(area);

    }
}
```

Bad:

```
public class BadCode{
    public static void main(String[]
                           args){

        Scanner scan = new
                    Scanner(System.in);
        double a = scan.nextDouble();
        double a2 = scan.nextDouble();

        double a3 = check3(a, a2);

        System.out.println(a3);

    }
}
```

Arrays

Storing multiple values in one Variable

But: Length and Datatype are fixed!

Arrays

```
int [] arr = new int[3];
arr[0] = 1;
arr[1] = 2;
arr[2] = 3;
```

Arrays

```
int [] arr = new int[3];
arr[0] = 1;
arr[1] = 2;
arr[2] = 3;


int [] arr2 = {1,2,3};
```

Arrays

```java
int [] arr = {1,2,3};

//iterates over the indices
for(int i = 0; i<arr.length; i++){
   System.out.println(arr[i]);
}


//iterates over the values
for(int i : arr){
   System.out.println(i);
}
```

2D Arrays

```
int [][] arr = new int[3][2];
arr[0][0] = 1;
arr[0][1] = 2;
arr[1][0] = 3;
arr[1][1] = 4;
arr[2][0] = 5;
arr[2][1] = 6;

int [][] arr2 = {{1,2},
                 {3,4},
                 {5,6}};

int [][] arr3 = new int[3][];
```

2D Arrays

```
int [][] arr = {{1,2},
                {3,4},
                {5,6}};

//iterates over the indices
for(int i = 0; i<arr.length; i++){
   for(int j = 0; j<arr[i].length; j++){
      System.out.println(arr[i][j]);
   }
}

//iterates over the values
for(int[] i : arr){
   for(int j : i){
      System.out.println(j);
   }
}
```

Arrays

Today's Assignment:
https://classroom.github.com/a/KpiDNbRi