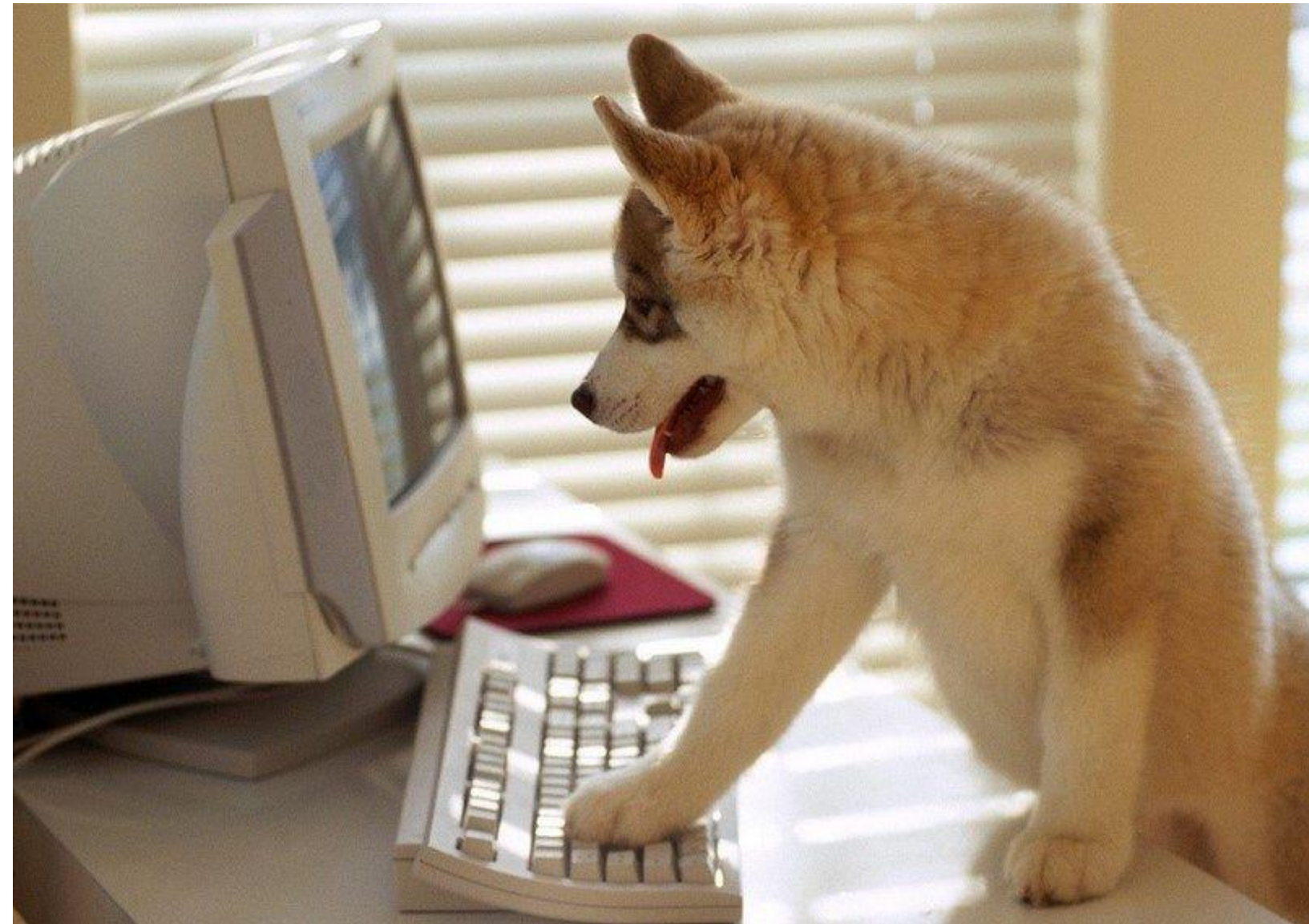


# Programming Tutorial [Basics]



# Organizational Stuff

If you own a laptop, please bring it here and use it!

Otherwise, use the Lint-Pool computers with Linux, **not with Windows!**

# Organizational Stuff

## Help needed?

- Java Dokumentation: <https://docs.oracle.com/en/java/javase/11/>
- A good Java Tutorial: <https://www.tutorialspoint.com/java/>
- Books:
  - B.Bates & K.Sierra: *Head first Java*  
<https://www.oreilly.com/library/view/head-first-java/0596009208/>
  - OpenBook: *Java ist auch eine Insel* (German) <http://openbook.rheinwerk-verlag.de/javainsel/>
- Most important: **Google** and **Stackoverflow** ;)

# Java Variables

- Different Datatypes:
  - int
  - float
  - double
  - boolean
  - String (this is a special one)
  - char
  - ...
- Structure:
  - `public static <DATATYPE> <NAME>;` (Declaration)
  - `public static <DATATYPE> <NAME> = <VALUE>;` (Declaration & Initialization)
  - Example:
    - `public static int x;`
    - `public static int x = 7;`

# If-Else

```
if (<CONDITION>) {  
    <STATEMENT>;  
}  
else{  
    <STATEMENT>;  
}
```

```
if (1<7) {  
    System.out.println("Juuhuu");  
}  
else{  
    System.out.println("Buuuh");  
}
```

# Switch Case

```
switch <VARIABLE>{  
    case <VALUE>:  
        <STATEMENT>;  
        break;  
    ...  
    default:  
        <STATEMENT>;  
}
```

```
switch x{  
    case 1:  
        System.out.println("1");  
        break;  
    ...  
    default:  
        System.out.println(":(")  
;  
}
```

# Loops

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

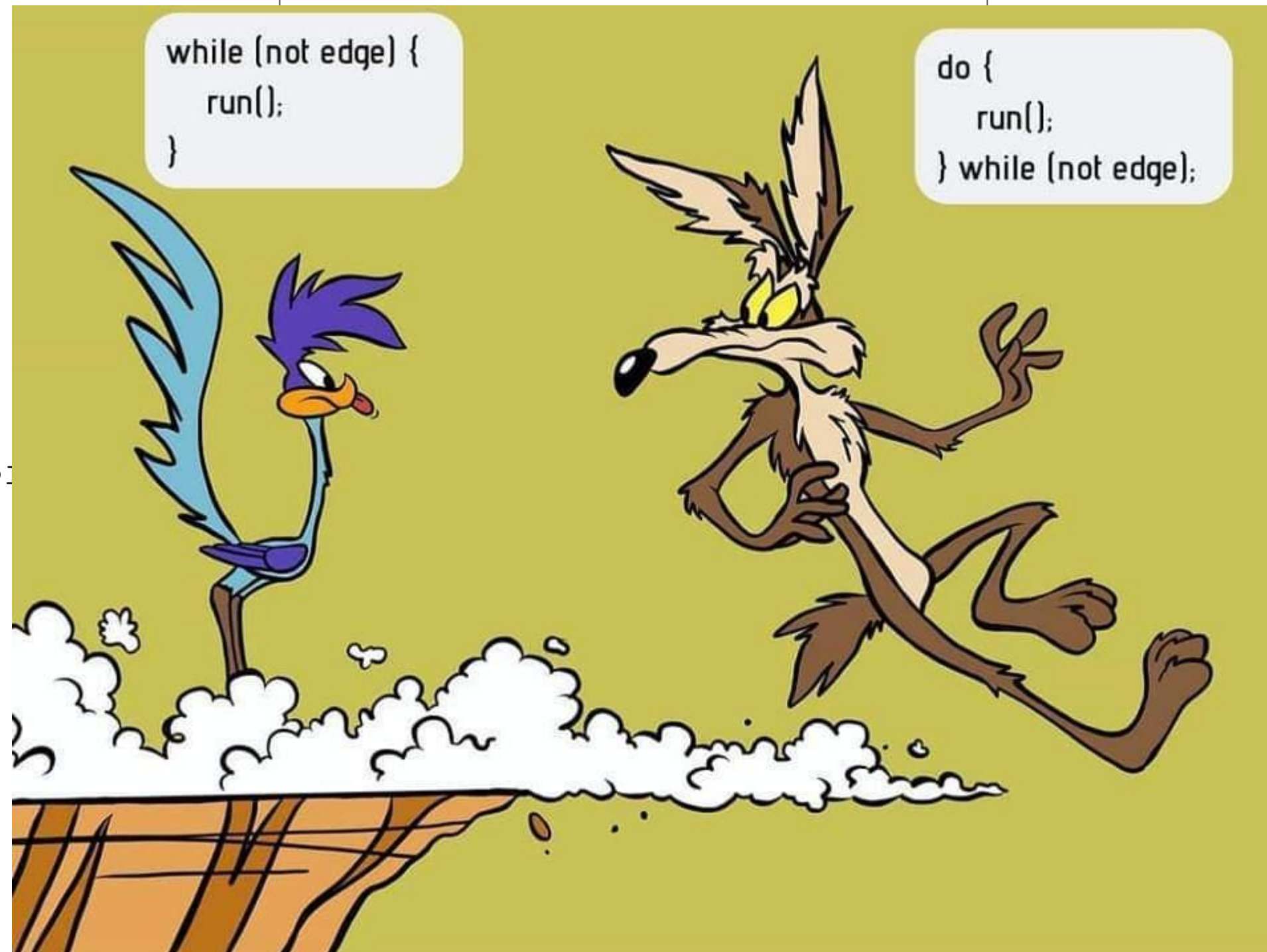
```
int x = 0;
do {
    System.out.println(x);
    x++;
}while (x < 5);
```

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



# Loops

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



```
x = 0; x < 5; x++) {  
    out.println(x);  
}
```

Source: <https://i.redd.it/6wksqjmmwyw321.jpg>



# GIT Dictionary

- *Repository*: Contains not just the code, but also important metadata
- *Commit*: Updates code with your changes and important metadata
- *Push*: Adds your local commits to the repository
- *Pull*: Updates your local code with the current commits

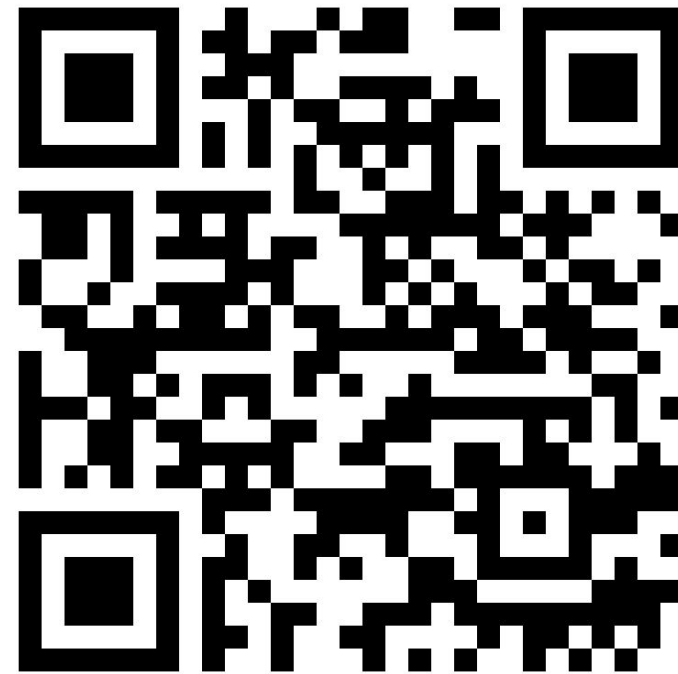
### Different ways to use GIT

1. Through the console (recommended for better understanding):  
<https://github.com/javaprogrammingbuw/structures/wiki/Git-commands>  
(Windows users: Download git ( <https://git-scm.com/downloads> ) and use *git bash*)
2. Different GIT GUIs (you can use them, but you have to figure out by yourself how they work)

# First Steps

In this course we will use Github Classroom

1. Get a Github Account if you don't have one
2. Go to: <https://classroom.github.com/a/YkdYsLN0> (or scan the QR Code with your phone)
3. Authorize Github and accept the assignment
4. Click on the repository



# First Steps

How to clone the repository?

1. Click on *Clone or Download*
2. Copy the link
3. Create a new folder on your computer
4. Open the console and navigate into the newly created folder
5. Type into the folder: `git clone <INSERT LINK>`
6. Press Enter and see the magic happen

# First Steps

How to compile?

```
javac YourJavaFile.java
```

How to run?

```
java YourJavaFile
```

This just works if you already have the java jdk correctly installed.  
If you don't, please download the latest version.  
I recommend to download it from openjdk:

<https://openjdk.java.net/>