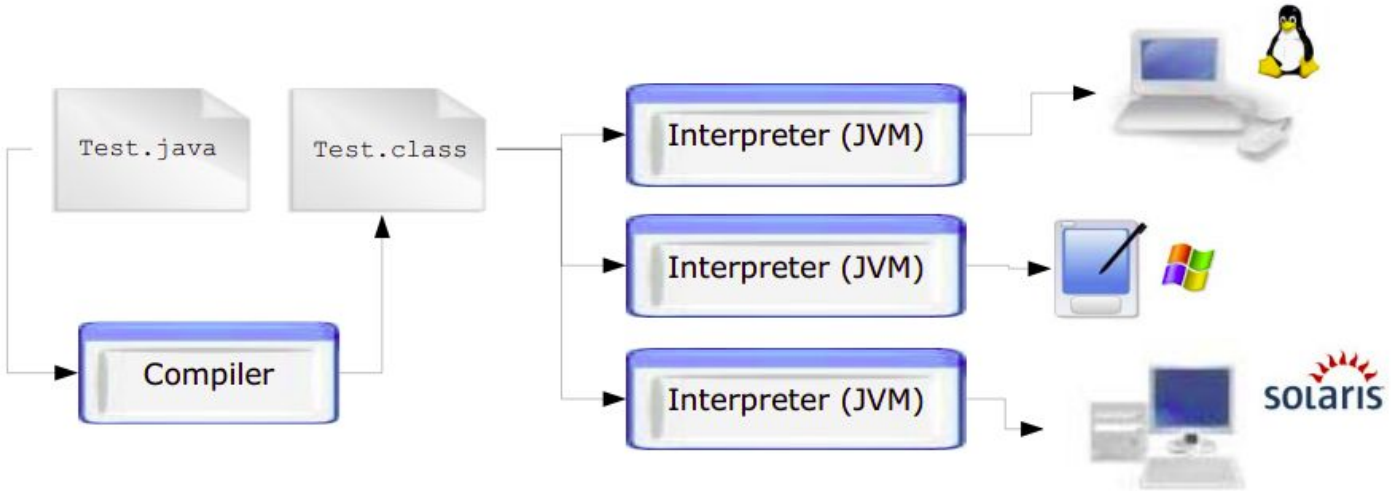
Assignment-0

Computer Architecture Laboratory

Java

Why Java?

- Object oriented programming
- Plat for independent



Hello World example

```
/**
* Hello World Application
* Our first example
*/
public class HelloWorld {
  public static void main(String[] args) {
    System.out.println("Hello World!"); // display output
  }
}
```

```
$ javac HelloWorld.java

$ ls
HelloWorld.class
HelloWorld.java

$ java HelloWorld
Hello World
```

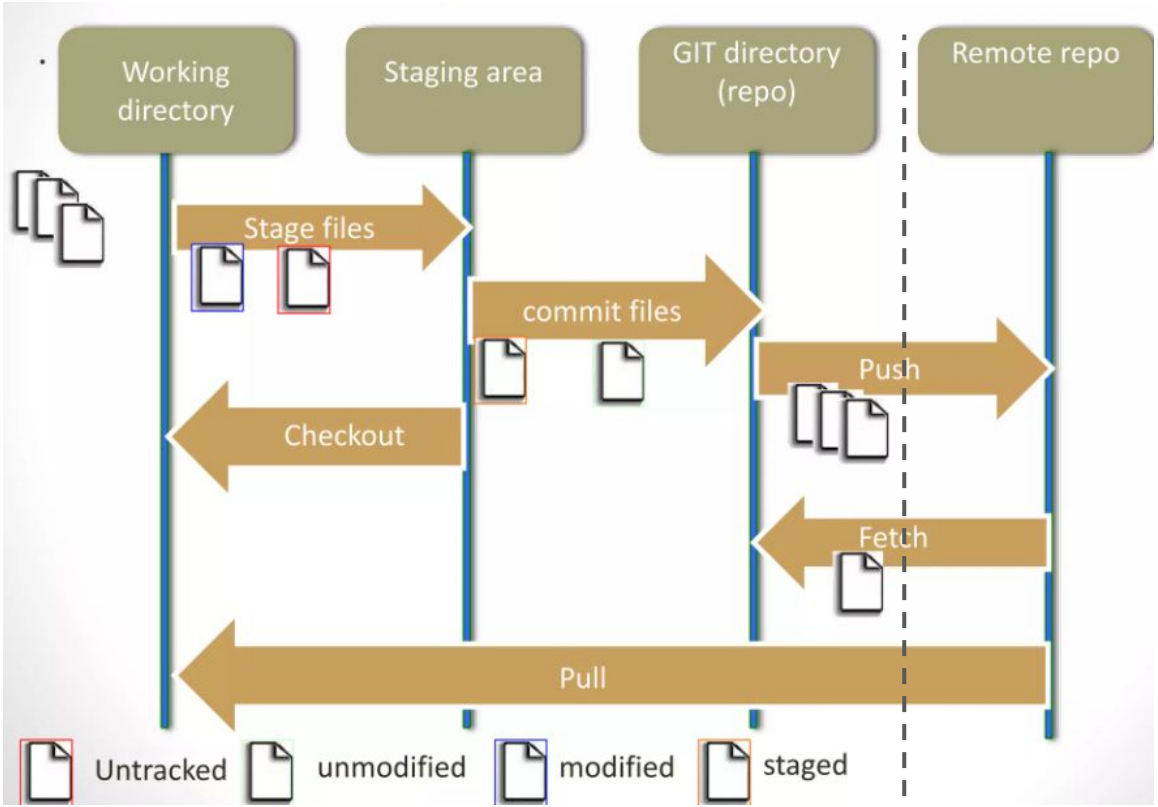
Tutorials

- https://www.w3schools.com/java/
- https://www.javatpoint.com/java-tutorial

Git

- **Version control system**
- Ability to have **unlimited number of developers** working on the same code base.
- Easily **revert back** your files changes if something happened.

Git state operation



Commands

To clone

```
git clone <repo> <directory>
```

To create and checkout the branch

```
git checkout -b <new-branch>
```

To add a file

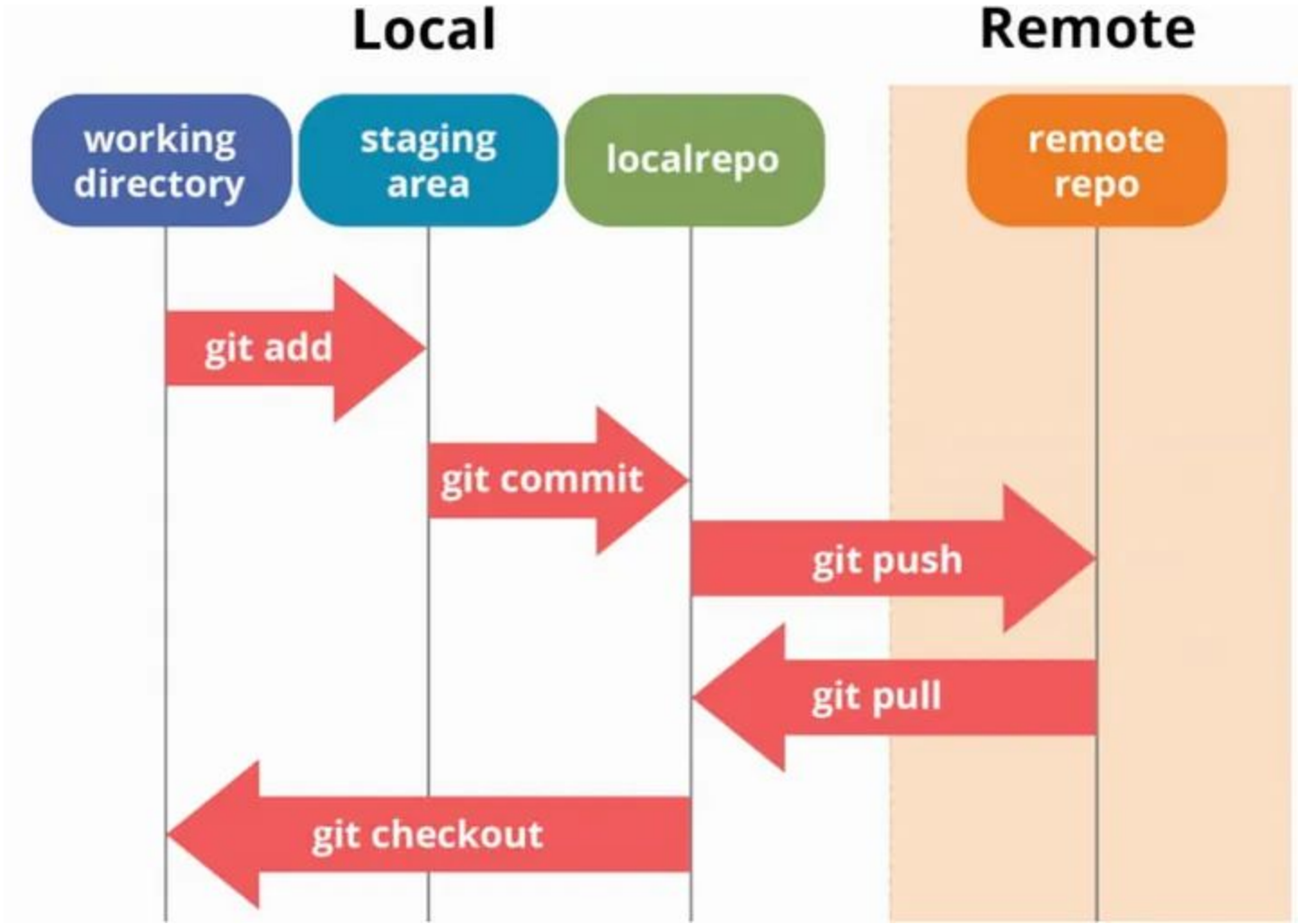
```
git add <path>
```

To commit changes

```
git commit -m "commit message"
```

To push the changes to remote repository

```
git push REMOTE-NAME BRANCH-NAME
```


Local
Remote
working directory
staging area
localrepo
remote repo
git add
git commit
git push
git pull
git checkout

Assignment-0

Defending Country(DC): defend its border against another country

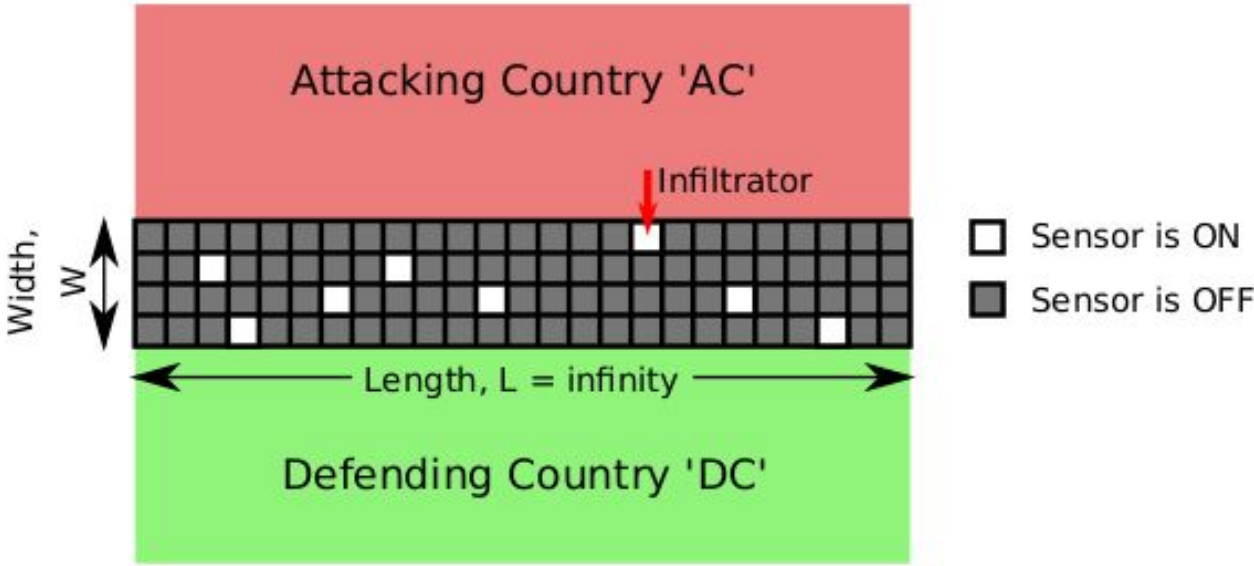
Attacking country (AC): aim is to send an infiltrator to cross the border and enter DC's land.

Border: length is **infinity** and width is W cells.

Sensors:

- Every cell has sensor.
- Have a fixed battery life
- ON or OFF - probability p

Infiltrator
In each step, he may move to any of the 8 cells around him



Classes to create

Border, Sensor, Infiltrator and Simulation

```
t = 0 // refers to time
while( infiltrator has not succeeded and infiltrator has not been caught)
{
    for each sensor s:
        s does some work as determined by time t
    infiltrator does some work as determined by time t
    increment time by 1 second
}
```

Implementation

- Implement the **simulator** using **Java**.
- Use **Eclipse environment** to help with coding and debugging.
- Use **Git for version controlling**. We have a Git server at https://gitea.iitdh.ac.in/

  Log in using your LDAP credentials.
- Vary **p and W** , and study how much time it takes for the infiltrator to cross.
- Prepare a document describing your observations. It is recommended you use Latex to prepare the document, and python matplotlib to plot the graphs.

Thank you