Principle of Operation of a Computer
Instruction Execution

```java
public class Interpreter {
    static int PC; // Program counter holds the address of the next instruction
    static int AC; // Register for doing arithmetic, accumulator
    static int instruction; // Current instruction
    static int instructionType; // Type of the current instruction, i.e. what to do
    static int dataLocation; // Address of the data for the instruction
    static int data; // Holds the operand
    static boolean runBit = true; // Bit used to halt the computer

    public static void interpreter(int memory[], int startingAddress) {
        PC = startingAddress; // Initialize the program
        while( runBit ) {
            instruction = memory[PC]; // Fetch next instruction
            PC = PC + 1; // Increment PC
            instructionType = getInstructionType(instruction); // Determine instruction
            dataLocation = findData(instruction, instructionType); // Locate data
            if( dataLocation >= 0 ) // No operand if -1
                data = memory[dataLocation]; // Fetch data
            execute(instructionType, data); // Execute instruction
        }
    }
}
```

Prof. Dr. Mesut Güneş www.inf.fu-berlin.de/inst/ag-tech TI II - 2008