

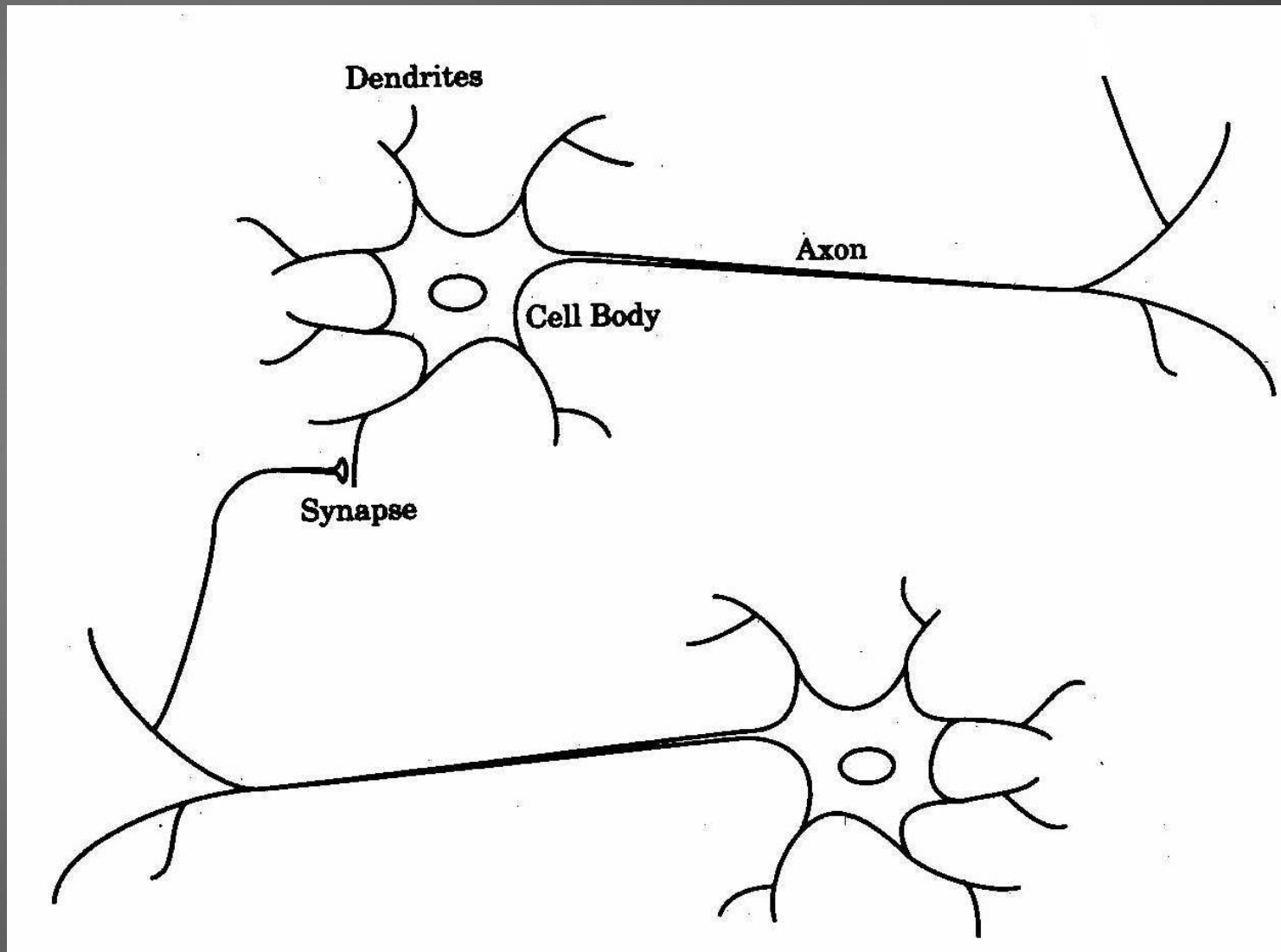
Artificial Neural Network



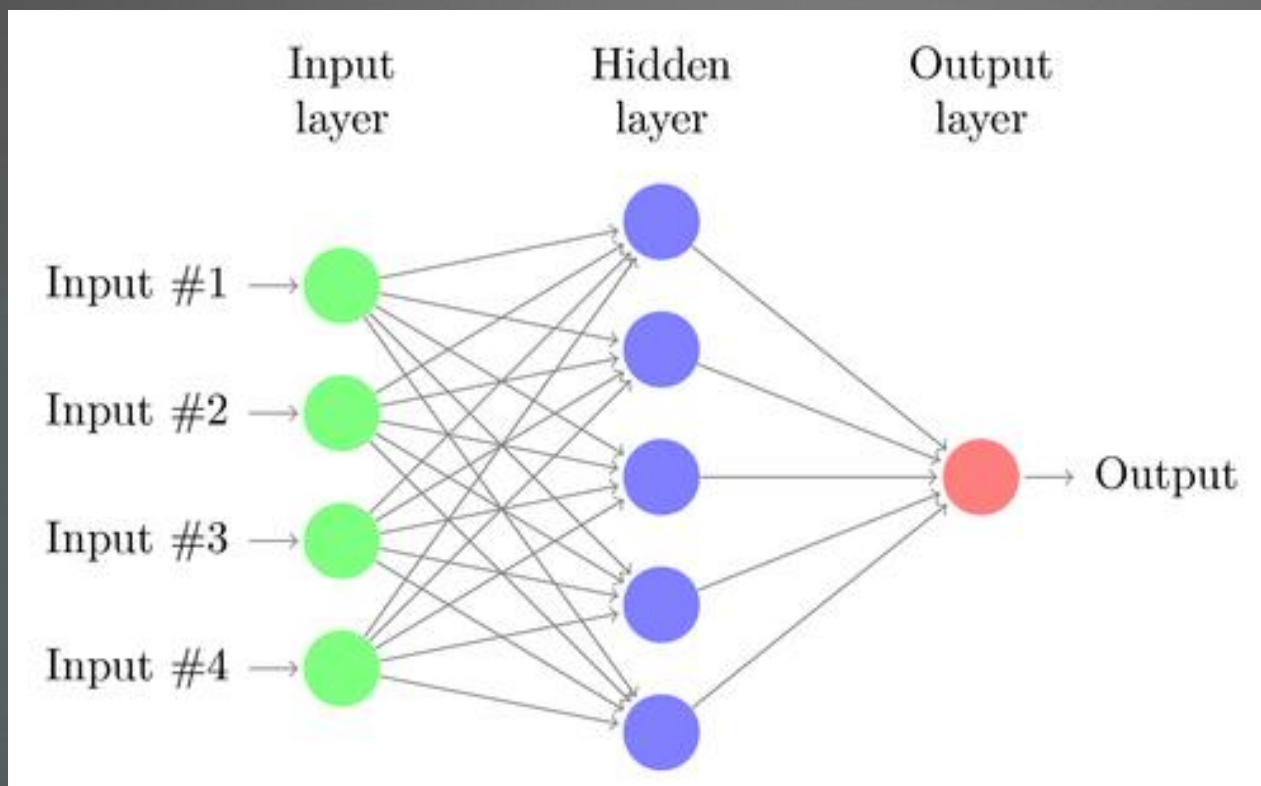
Aishwarya
Nayana
Amritanshu
Matthew
Anand

Concepts Overview

- Neurons
- Synapses
- Neural Network



What is Artificial Neural Network?



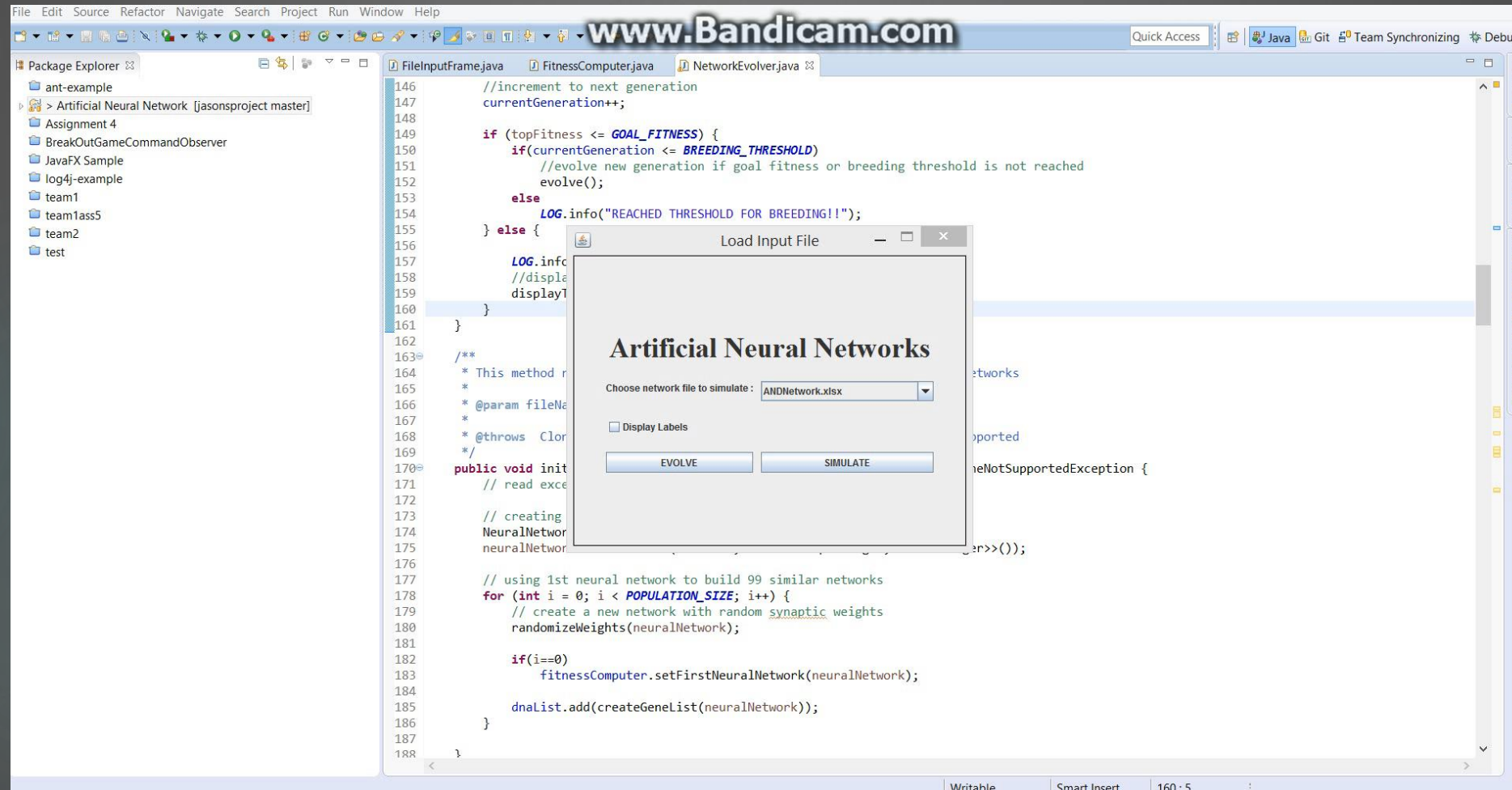
Motivation

- ▶ Finding solutions for “easy-for-a-human, difficult-for-a-machine” tasks
- ▶ Pattern Recognition
- ▶ Soft Sensors
- ▶ Signal Processing

Goals

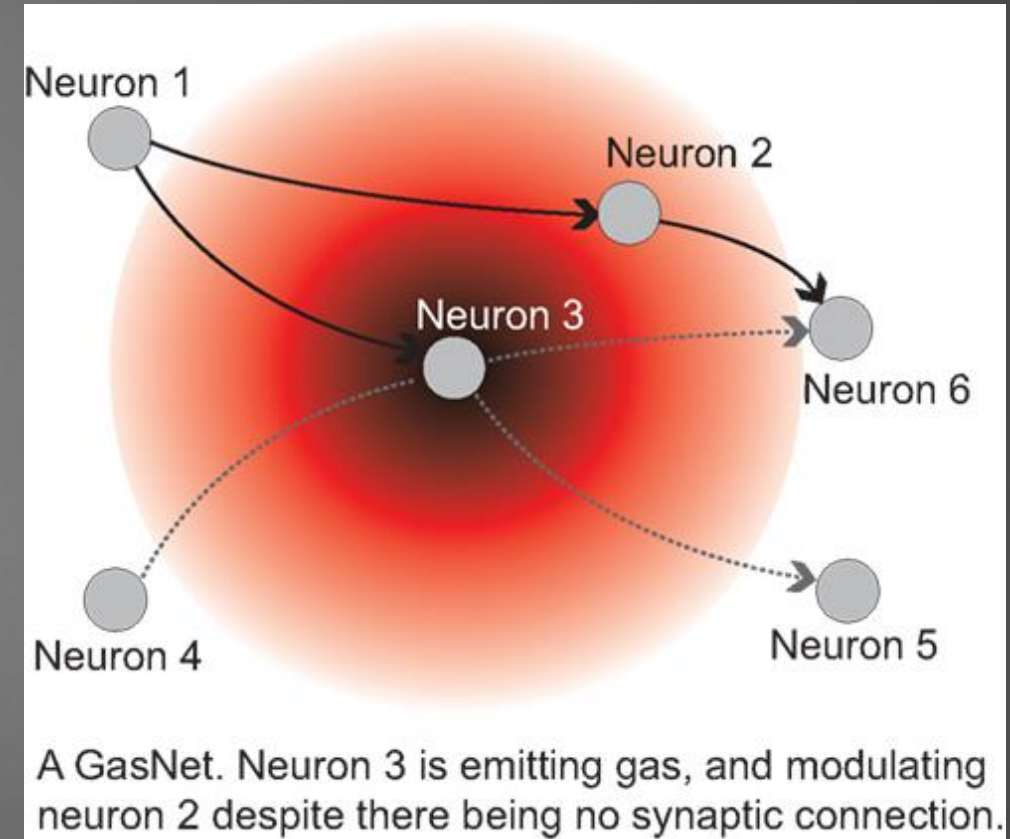
- ▶ Simulate Artificial Neural Networks
- ▶ Simulate Gas Networks (GASNet)
- ▶ Make Artificial Neural Network learn
- ▶ Evolve Artificial Neural Networks

ANN Simulation

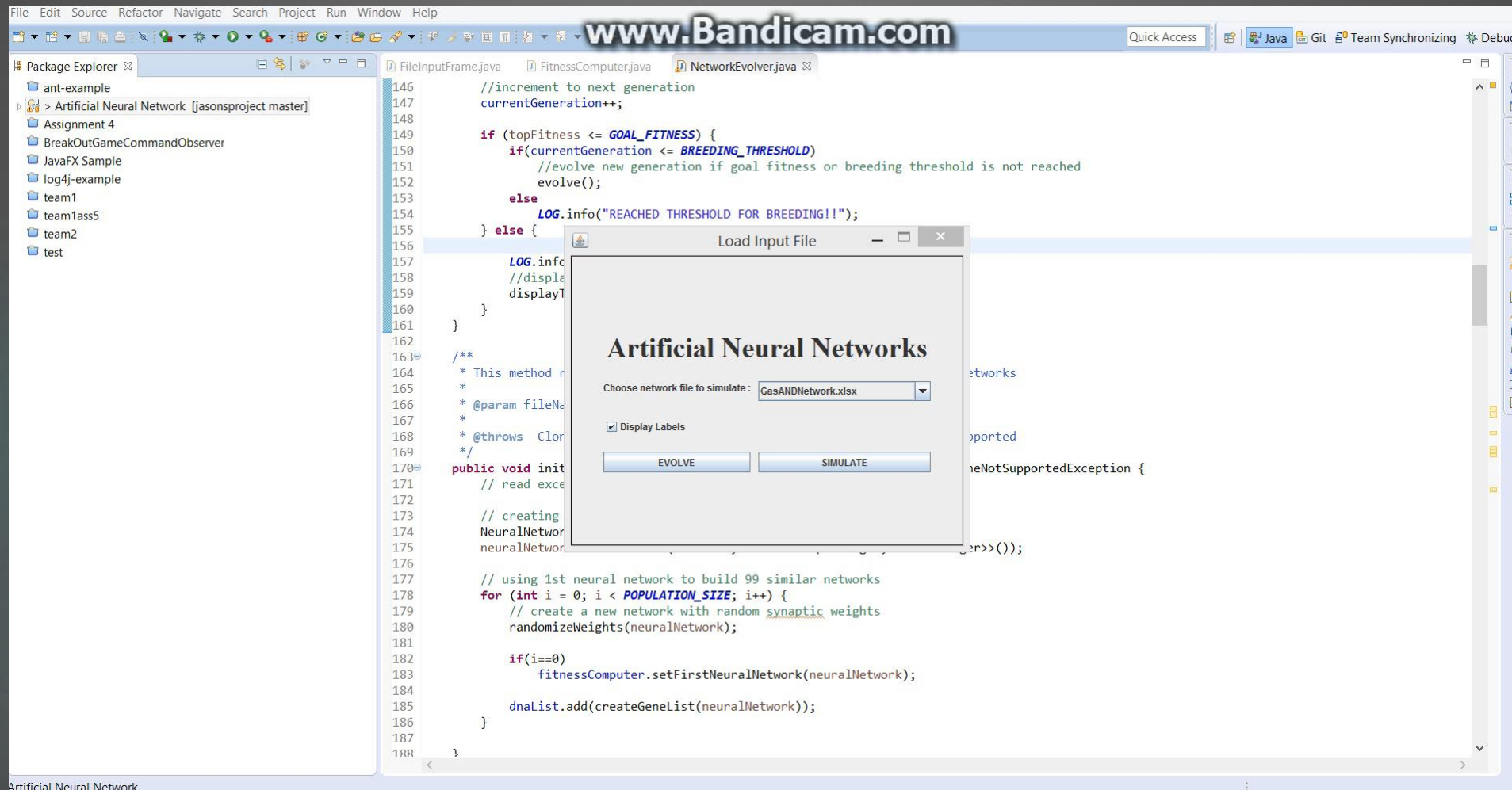


Gas Network Concepts

- Gases
- Receptors
- Gas Modulation



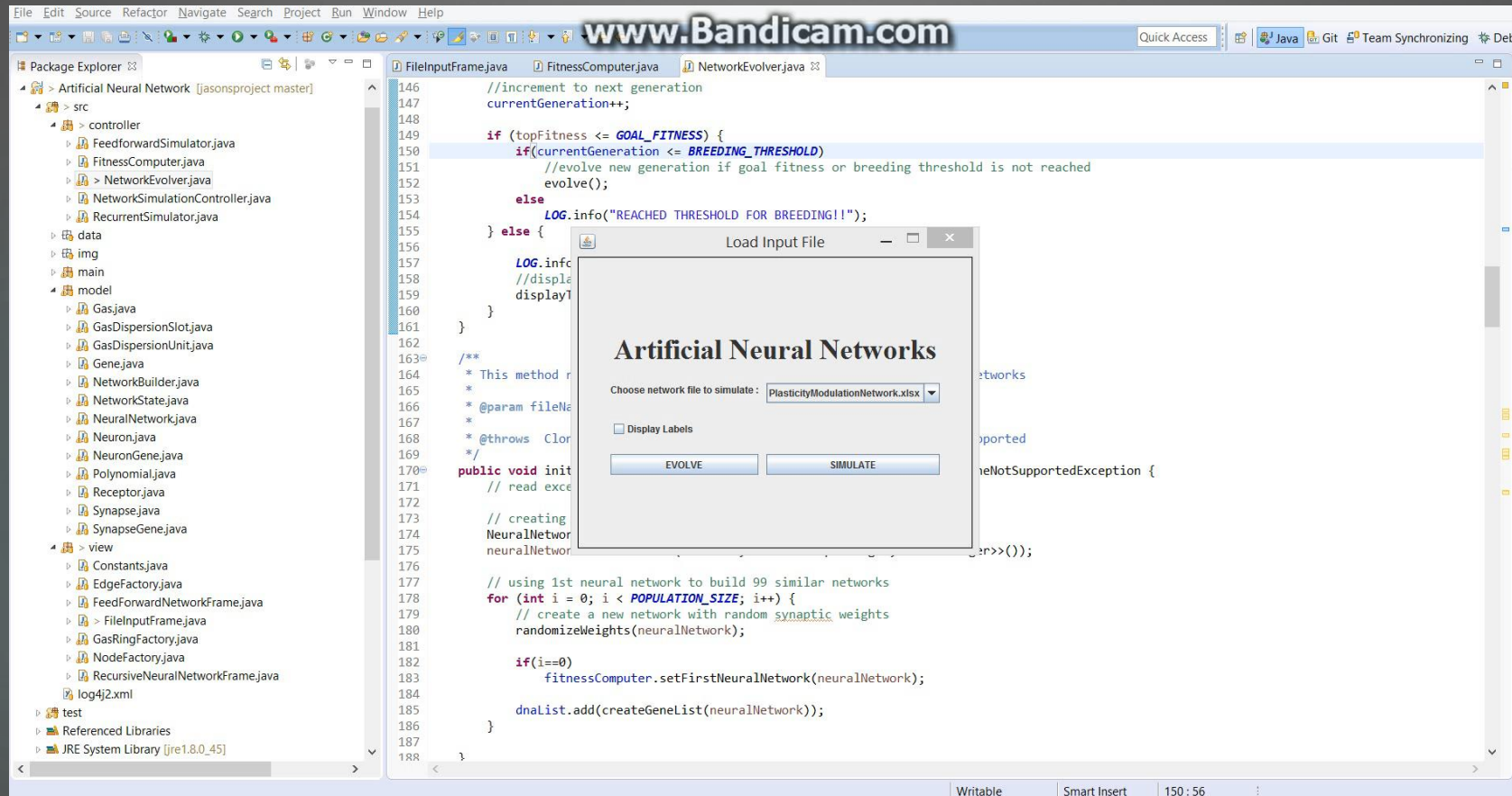
GasNet Simulation



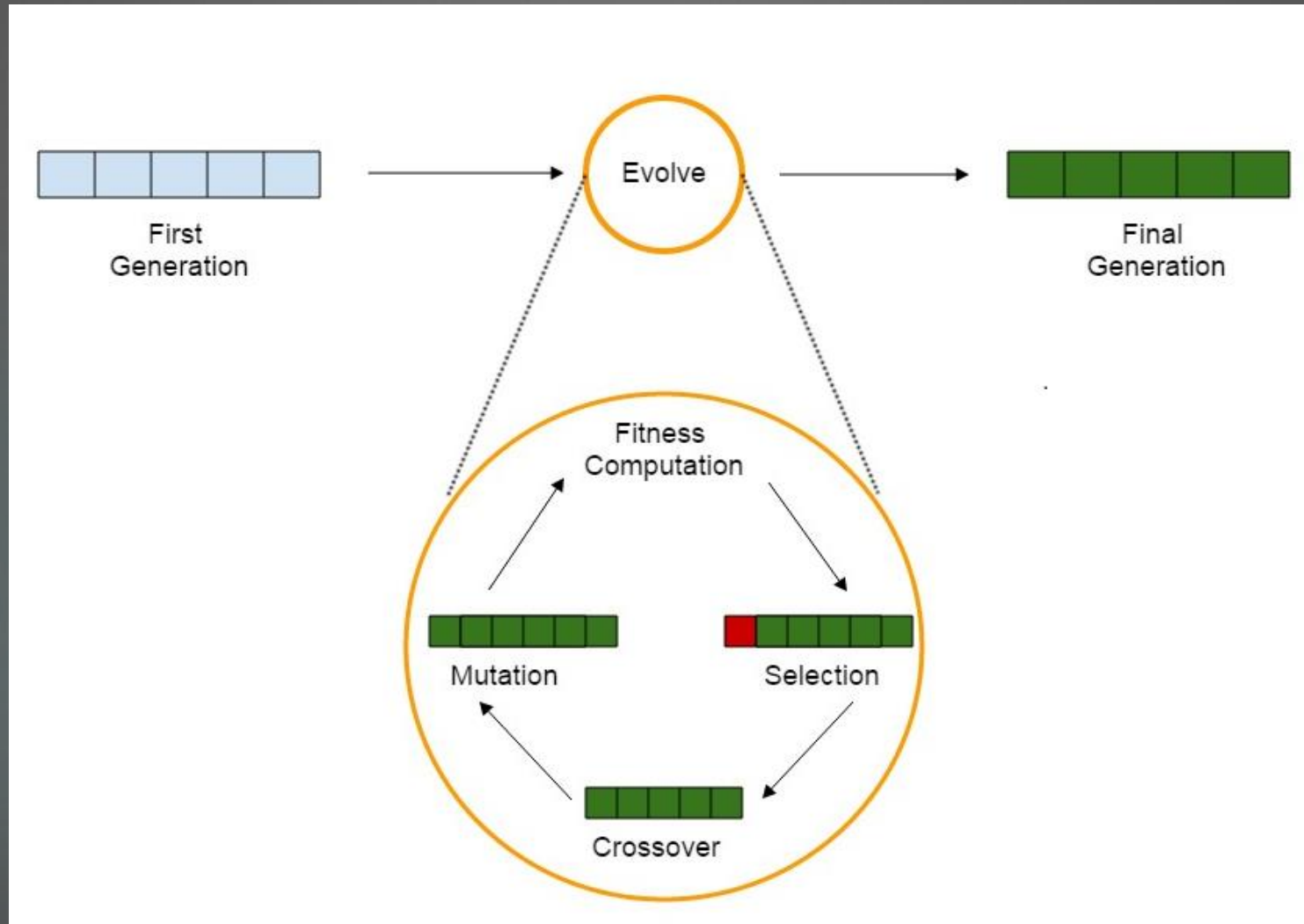
ANN Learning

- ▶ Synaptic Plasticity (Hebbian)
- ▶ Network learning

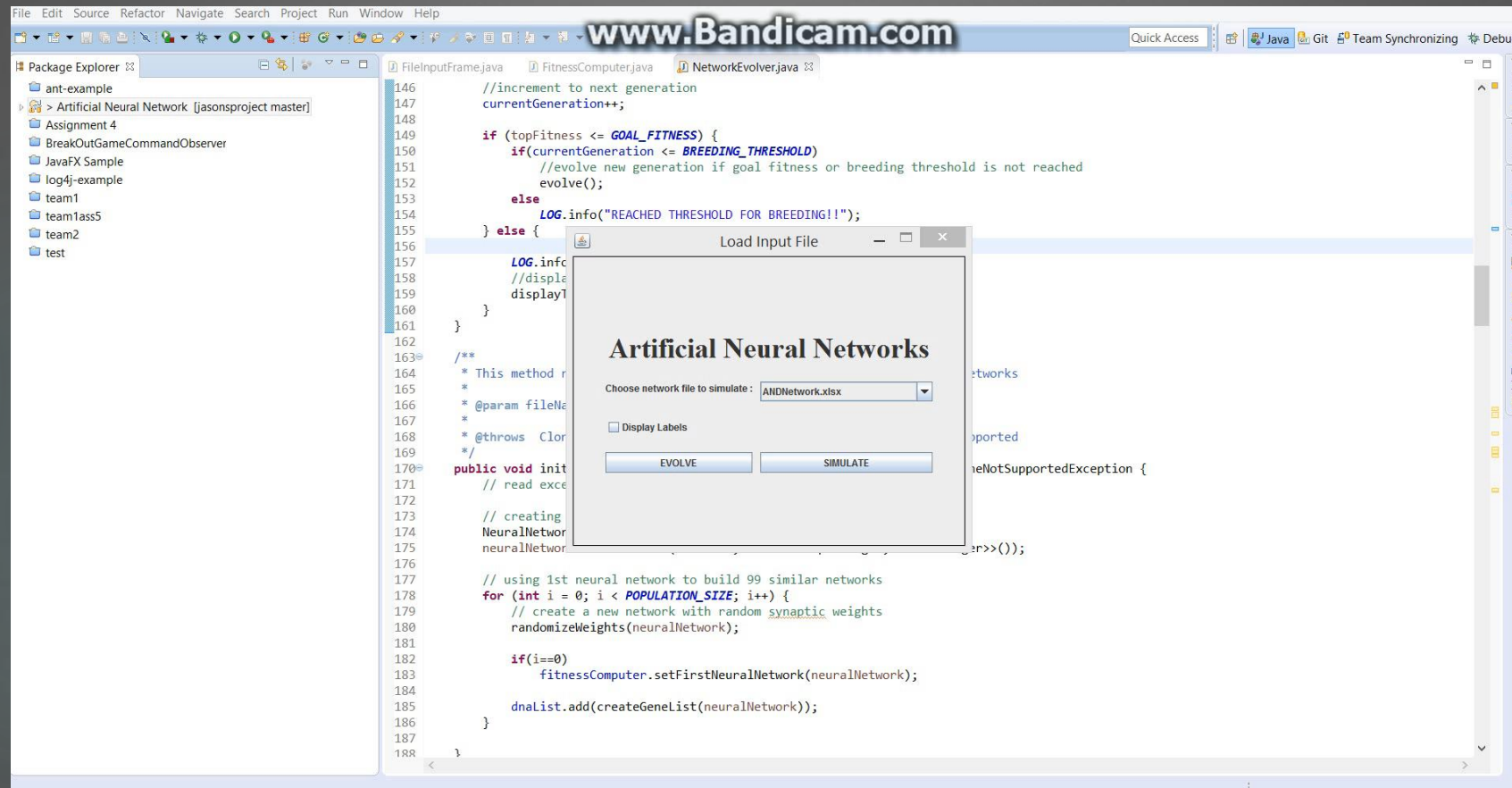
ANN Learning



ANN Evolution



ANN Evolution



Working Strategy

- ▶ Design as a team
- ▶ Code in sub-teams
- ▶ Review as a team
- ▶ Delegate responsibilities

Take Away

- ▶ ANN concepts
- ▶ Code maintainability and extensibility
- ▶ Working with a client
- ▶ Experienced power of “team work”

Questions ?