A Beginner’s Guide to Project 1

11-711: Algorithms for NLP

Fall 2017
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1. Install the Required Software

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Install Eclipse

- Link: https://www.eclipse.org/downloads/

- Follow their instructions
Is Your Mac 64-bit?

- May create unexpected results with HashMap, HashSet, etc.
- What you see on your computers may be different from what we see when grading
- Do this in your Terminal
  
  \$ getconf LONG_BIT

- Most of your Mac computers are compatible with 64 bits.
Install Apache Ant

- **On Mac**
  
  $ /usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
  
  $ brew install ant

- **On Linux**
  
  $ sudo apt-get update
  
  $ sudo apt-get install ant

- **On Windows**
  
  DIY: [https://www.mkyong.com/ant/how-to-install-apache-ant-on-windows/](https://www.mkyong.com/ant/how-to-install-apache-ant-on-windows/)
Outline

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Download Project Code

- Starter code:
  
  https://storage.googleapis.com/11711/code1.tar.gz

- Data:
  
  https://storage.googleapis.com/11711/data1.tar.gz

- Unzip
  
  $ tar -xzf code1.tar.gz
  
  $ tar -xzf data1.tar.gz
Try Running the Starter Code

- Go to code1
  
  $ ant -f build_assign1.xml
  $ export DATA_PATH="/absolute/path/to/your/data/folder"
  $ java -cp assign1.jar:assign1-submit.jar -server -mx500m \ 
    edu.berkeley.nlp.assignments.assign1.LanguageModelTester \ 
    -path $DATA_PATH -lmType UNIGRAM
Automatize Your Workflow

• Create a `run.sh` script that launches your experiment

  $ vim run.sh
  $ # copy the scripts from the previous slide
  $ # changing UNIGRAM to TRIGRAM
  $ chmod 777 run.sh

• Now you can run your experiment with 1 command

  $ ./run.sh

• Much less frustration when working on large projects
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Launch Eclipse and Create your Workspace

- This is **not** where your code lives

```
Eclipse Launcher

Select a directory as workspace
Eclipse uses the workspace directory to store its preferences and development artifacts.

Workspace: /Users/hyheu/Code/eclipse_workspace

- Use this as the default and do not ask again

Recent Workspaces

Launch
```

Launch Eclipse and Create your Workspace

• Looks like this when done correctly
Create Your Eclipse Project
Create Your Eclipse Project

![Eclipse Project Creation Screen]

- **Project name:** `algorithms_for_nlp_project_1`
- **Location:** `/Users/nyhlee/Code/eclipse_workspace/algorithms_for_nlp_project`
- **JRE:**
  - Use an execution environment JRE: `JavaSE-1.8`
  - Use a project specific JRE: `Java SE 8 [1.8.0_121]`
  - Use default JRE (currently 'Java SE 8 [1.8.0_121]')
- **Project layout:**
  - Use project folder as root for sources and class files
  - Create separate folders for sources and class files
- **Working sets:**
  - Add project to working sets
  - Working sets: ```

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Create Your Eclipse Project

- The project folder lives in your workspace

- The code does not.
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Import Code
Import Code

Select
Import resources from an archive file into an existing project.

Select an import wizard:

- General
  - Archive File
  - Existing Projects into Workspace
  - File System
  - Preferences
  - Projects from Folder or Archive
- Git
  - Projects from Git
- Gradle
- install
- Maven
- Oomph
- Run/Debug
- Tasks
- Team
- XML
Import Code

- Point to where you downloaded the code
Import Code

- Looks like this if done correctly
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Write Your Code

- Open the file `LmFactory.java`

- It’s tricky
Write Your Code

• Looks like this if done correctly

```java
package edu.berkeley.nlp.assignments.assign1.student;

import java.util.List;

import edu.berkeley.nlp.langmodel.LanguageModelFactory;
import edu.berkeley.nlp.langmodel.NgramLanguageModel;
import edu.berkeley.nlp.assignments.assign1.student.KneserNeyLanguageModel;

public class LmFactory implements LanguageModelFactory {
    
    /**
     * Returns a new NgramLanguageModel; this should be an instance of a class that you implement.
     * Please see edu.berkeley.nlp.langmodel.NgramLanguageModel for the interface specification.
     *
     * @param trainingData
     */
    public NgramLanguageModel newLanguageModel(Iterable<List<String>> trainingData) {
        return new KneserNeyLanguageModel(trainingData);
    }
}
```
Open code1 from Eclipse

- Easier to navigate and organize your files
Open code1 from Eclipse

- Select the folder with `build_assign1.xml`
Open code1 from Eclipse

- Looks like this if done correctly
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Java Basics

- http://www.cs.cmu.edu/~jxc/100.html
Questions?