`Antlr v4` Setup Instructions

These instructions are for setting up your antlr v4 development environment. There are different instructions for Ubuntu (Should be applicable for most linux systems), Mac, and Windows environments. **Make sure you complete the section on building your first antlr parser or else you will not complete the setup**. Use the instruction relevant to your machine.

1 Ubuntu

This section details how to setup the ubuntu development environment. Go through each step and don't skip stuff.

1.1 Installing Oracle Java JDK 8

1.1.1 Simple way (Recommended)

`Intellij` uses oracle Java to operate. So copy and paste these commands instructions into the command line.

```
sudo apt-add-repository ppa:webupd8team/java
sudo apt-get update
sudo apt-get install oracle-java8-installer
sudo apt-get install oracle-java8-set-default
```

1.1.2 Complex way

Go here and follow their manual installation methods

1.2 Installing Intellij

1. Go to the jetbrains website and download *Intellij Community Edition* for ubuntu.

2. Once the intellij tar ball is downloaded copy it to

   `/opt`

   using the command

   `sudo cp ideaIU-<Version>.tar.gz /opt`

   (If you are confident about your ability to setup your own install you can put it elsewhere but you will be on your own.)

3. Change directory to /opt

   `cd /opt`

4. Unpack the tar ball

   `sudo tar -xvf ideaIU-<Version>.tar.gz`

5. Execute the installer

   `sudo /opt/idea-IU-<Version>/bin/idea.sh`

6. Follow the installation wizard.

(a) Select I don't have any configurations.

(b) Pick whichever UI is prettiest to you. Then hit `Next: Default Plugins`

(c) None of these are necessary so you can hit `Next: Feature Plugins`

(d) None of these are necessary so you can hit `Start using IntellijIDEA`

1.3 Installing antlr v4 plug-in for Intellij

1. Launch Intellij by going to the application launcher and typing

   ```
   intellij idea
   ```

   This should launch Intellij IDEA.

2. In the bottom corner click `Configure` → `Plugins`. This will open the plugin manager

3. Click `Browse Repositories`

4. In the search bar type

   ```
   antlr
   ```

5. From the list select

   ```
   ANTLR v4 grammar plugin
   ```

   and hit `install plugin`. Hit yes when asked for confirmation.

6. After the install bar ends hit the button `restart Intellij`

1.4 Getting Antlr4 libraries

1. Follow the steps on this tutorial

2. Follow the steps on this tutorial

1.5 Configuring first project

1. Click `Create new project`

2. Select Java Project and then next to *Project SDK* select `New` → `JDK`

3. The location should be

   ```
   /usr/lib/jvm/java -8- oracle/
   ```

4. Click `Next` then click `Next` again.

5. Name your project and click `Finish`

6. Open Project manager (Default hotkey Alt-1)

7. In the project menu that you just opened right-click on the `src` folder → New → File

8. name the file

   ```
   hello.g4
   ```

9. In the new file put the following content

```
grammar hello;

rule: 'hello' id;
id  : STRING;

STRING: CHAR+;
CHAR: [a-z|A-Z];
WS: ' '+ -> skip;
```

10. right click on `rule` → select `Test Rule rule`

11. There are three new boxes that open:

    (a) a small that appears to be to input a file name

    (b) a larger one underneath

    (c) To the right of that there is a box on top of which is "Parse tree | Profiler"

    in the second box type

    ```
    hello <your name>
    ```

    in the third box a tree should appear a parse tree

12. Congratulations you've made your first Antlr4 parser

2 Windows

2.1 Installing Oracle Java JDK 8

1. Go to the Oracle download site and download the version of oracle jdk8 appropriate to your windows system.

2. run the Oracle Java installer you just downloaded and follow all the steps

2.2 Installing Intellij

1. Go to the jetbrains and download *Intellij Community* for windows.

2. Run the installation wizard you just downloaded

3. Follow the instructions and install it (Recommended use default setting)

4. Launch IntellijIDEA to finish installation

    (a) Select I don't have any configurations.

    (b) Select `JetBrains account` and use the account information you just created to authenticate. **You must have already authenticated it first otherwise this won't work.**

    (c) Pick whichever UI is prettiest to you. Then hit `Next: Default Plug-ins`

    (d) Leave Java Frameworks and Build tools enabled everything else can be disabled at your discretion. Then hit `Next: Feature Plug-ins`

    (e) None of these are necessary so you can hit `Start using IntellijIDEA`

2.3 Installing antlr v4 plug-in for IntelliJ

1. Launch IntelliJ by going to the application launcher and typing

   ```
   intellij idea
   ```

   This should launch Intellij IDEA.

2. In the bottom corner click `Configure` → `Plugins`. This will open the plugin manager

3. Click `Browse Repositories`

4. In the search bar type

   ```
   antlr
   ```

5. From the list select

   ```
   ANTLR v4 grammar plugin
   ```

   and hit `install plugin`. Hit yes when asked for confirmation.

6. After the install bar ends hit the button `restart Intellij`

2.4 Getting Antlr4 libraries

1. Follow the steps on this tutorial

2. Follow the steps on this tutorial

2.5 Configuring first project

1. Click `Create new project`

2. Select Java Project and then next to *Project SDK* select `New` → `JDK`

3. The location should be

   ```
   C:\Programs Files\Java\jdk<Version>\
   ```

4. Click `Next` then click `Next` again.

5. Name your project and click `Finish` again

6. Open Project manager (Default hotkey Alt-1)

7. In the project menu that you just opened right-click on the `src` folder → New → File

8. name the file

   ```
   hello.g4
   ```

9. In the new file put the following content

   ```
   grammar hello;

   rule: 'hello' id;
   id  : STRING;

   STRING: CHAR+;
   CHAR: [a-z|A-Z];
   WS: ' '+ -> skip;
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    (a) a small that appears to be to input a file name

    (b) a larger one underneath

    (c) To the right of that there is a box on top of which is "Parse tree | Profiler"

    in the second box type

    ```
    hello <your name >
    ```

    in the third box a tree should appear a parse tree

12. Congratulations you've made your first Antlr4 parser

3 Mac OS X

3.1 Installing Oracle Java JDK 8

1. Go to the Oracle download site and download the version of oracle jdk8 for mac os

2. run the Oracle Java installer you just downloaded and follow all the steps

3.2 Installing Intellij

1. Go to the jetbrains and download *Intellij Community* for OSx.

2. Launch the installer by double clicking on the *.dmg*

3. Open your `Applications` and launch Intellij IDEA 14.app to finish the installation

    (a) Select I don't have any configurations.

    (b) Select `JetBrains account` and use the account information you just created to authenticate. **You must have already authenticated it first otherwise this won't work.**

    (c) Pick whichever UI is prettiest to you. Then hit `Next:  Keymaps`

    (d) Select which keymap scheme you want. Then hit `Next:  Default Plug-ins`

    (e) Leave Java Frameworks and Build tools enabled everything else can be disabled at your discretion. Then hit `Next:  Feature Plug-ins`

    (f) None of these are necessary so you can hit `Start using IntellijIDEA`

3.3 Installing antlr v4 plug-in for Intellij

1. Launch Intellij

2. In the bottom corner click `Configure` → `Plugins`. This will open the plugin manager

3. Click `Browse Repositories`

4. In the search bar type

    ```
    antlr
    ```

5. From the list select

```
ANTLR v4 grammar plugin
```

and hit `install plugin`. Hit yes when asked for confirmation.

6. After the install bar ends hit the button `restart Intellij`

3.4 Getting Antlr4 libraries

1. Follow the steps on this tutorial

2. Follow the steps on this tutorial

3.5 Configuring first project

1. Click `Create new project`

2. Select Java Project and then next to *Project SDK* select `New` → `JDK`

3. The installation process will give you an interactive interface (similar to finder) to locate the file. At the very top of the window select `"Computer"`, then follow the directory path Macintosh

    `HD/Library/Java/JavaVirtualMachines`

    and select the folder `jdk1.8.0_45.jdk` (or whichever is the current version that you are installing).

4. Click `Next` then click `Next` again.

5. Name your project and click `Finish`

6. Open Project manager (Default hotkey CMD-1)

7. In the project menu that you just opened right-click on the `src` folder → New → File

8. name the file

    ```
    hello.g4
    ```

9. In the new file put the following content

    ```
    grammar hello;

    rule: 'hello' id;
    id  : STRING;

    STRING: CHAR+;
    CHAR: [a-z|A-Z];
    WS: ' '+ -> skip;
    ```

10. CLTR-click on `rule` → select `Test Rule rule`

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    (a) a small that appears to be to input a file name

    (b) a larger one underneath

    (c) To the right of that there is a box on top of which is "Parse tree | Profiler"

    in the second box type

```
hello <your name >
```

in the third box a tree should appear a parse tree

12. Congratulations you've made your first Antlr4 parser

4 CS Computers

4.1 Environment variables

If you're working on the computers on the CS network then most of the installation is already done for you. However, some steps are needed for the final setup to work properly. To simplify the execution of these steps we have created a script to do most of the work. Download the script here and then run it.

4.2 Configuring first project

1. Click `Create new project`

2. Select Java Project and then next to *Project SDK* select `New → JDK`

3. The location should be

   ```
   /usr/lib/jvm/java -8- oracle/
   ```

4. Click `Next` then click `Next` again.

5. Name your project and click `Finish`

6. Open Project manager (Default hotkey Alt-1)

7. In the project menu that you just opened right-click on the `src` folder → New → File

8. name the file

   ```
   hello.g4
   ```

9. In the new file put the following content

   ```
   grammar hello ;

   rule: 'hello ' id ;
   id   : STRING ;

   STRING : CHAR +;
   CHAR : [a-z|A-Z];
   WS: ' '+ -> skip ;
   ```

10. right click on `rule` → select `Test Rule rule`

11. There are three new boxes that open:

    (a) a small that appears to be to input a file name

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    (c) To the right of that there is a box on top of which is "Parse tree | Profiler"

    in the second box type
```

```
hello <your name >
```

in the third box a tree should appear a parse tree

12. Congratulations you've made your first Antlr4 parser