Homework 4: Translation to Java

In this homework, you will complete your RoboLang compiler by adding translation to Java.

Step 1. Check out the project

Before you do this, make sure that you have committed all your Homework 3 work to the SVN repository.

In your Subversion repository:

1. Create a folder **homework4**. You should be able to do this using Eclipse's **SVN Repository Exploring** perspective. After you create the folder, your repository should contain the folders: **homework1**, **homework2**, **roboc**, and **homework4**.
2. Copy **roboc** and paste a copy into the **homework4** folder.
3. Do **Find/Checkout As…** on the newly created **roboc/** folder in **homework4/**. This causes a **Check Out As** wizard to appear.
4. Select **Check out as a project with the name specified:**, and enter the name **roboc-hw4**. Click **Finish**.
5. Switch back to the **Java** perspective. You should now see the **roboc-hw4** project in your **Package Explorer**.

Don't forget to do a **Maven -> Update Project** on the project.

Step 2. Download and run Robocode

Go to http://robocode.sourceforge.net/, download Robocode, and try out the "Getting started" tutorial. In particular, I recommend you try the following:

- Run a battle between sample.Crazy, sample.Fire, and sample.SpinBot.
- Creating a new robot using the Robocode Robot Editor.
- Test your robot in battle.

The purpose of this step is mainly to familiarize you with Robocode thereby reducing the difficulty of the subsequent steps.

Step 3. Extend your parser (by writing Java code)

Make your program translate from RoboLang to Java. You may print the Java code to standard output (i.e., **System.out**). Caution: The Java code you generate must be free of compile errors! To test your generated code, copy and paste it into the Robocode Robot Editor and see if it compiles.

Here are a few constraints on how you do the translation:

- The robot name (i.e., the identifier that follows **robot** at the beginning a robot definition) in the RoboLang code should be the name of the Java class you generate.
- The **main** behavior should go in the Java Robot's **run** method.

- The **alert robot** behavior should go in the Java Robot's **onScannedRobot** method.
- The **alert wall** behavior should go in the **onHitWall** method.
- Many of the reserved words/commands should be translated to their counterpart in Robocode's **Robot** class API: http://robocode.sourceforge.net/docs/robocode/
    - You may also need to use the APIs for **ScannedRobotEvent** and/or **HitWallEvent** to implement some instructions.
- All variables should be of Java primitive type **double**.

Here are some implementation tips/constraints:

- Include your name checker from the previous homework as part of your final solution.
- To add the new translation behavior, just create and run (or rather, **walk**) another walker in the **main**.

Step 4. Submit your work

To submit, simply commit your files to the SVN repository. Feel free to add/commit your test files as well.