

Homework 1: RoboLang Scanner

For this homework, you will create a scanner with ANTLR. In the next homework you will build a parser that uses this scanner.

The Tokens

Your scanner must partition an input stream of characters into the following tokens.

Keywords

Token name	Pattern to match	Token name	Pattern to match
ROBOT	robot	WHILE	while
AHEAD	ahead	DO	do
BACK	back	OD	od
NOOP	noop	IF	if
FIRE	fire	THEN	then
ENERGY	energy	ELSIF	elsif
LEFT	left	ELSE	else
RIGHT	right	FI	fi
SCAN	scan	VAR	var
BEARING	bearing		

Operators

Token name	Pattern to match	Token name	Pattern to match
MULT	*	LPAREN	(
DIV	/	RPAREN)
PLUS	+	SEMICOL	;
MINUS	-	COLON	:
LESS	<	COMMA	,
GREATER	>	ASSIGN	:=
EQUALS	=		
LOR			
LAND	&&		
NOT	!		

Variable tokens

Token name	Pattern to match
NUMBER	An integer or floating-point value (e.g., 2, 3.5, -3)
IDENTIFIER	Same as Java identifiers (e.g., myVar3, FOO_VAL)

Input to ignore

In addition to identifying the above tokens, your scanner should ignore whitespace and comments that start with a # and go until the end of the line.

Checking Out the Project

I have created you a Subversion repository space at the following URL:

https://utopia.cs.memphis.edu/course/comp4040-2013fall/uuids/YOUR_UUID/

Where you should replace *YOUR_UUID* with your UUID (i.e., your UofM email name; mine is sdfming).

In your space, you will find an Eclipse project named **homework1**. Using Eclipse, checkout this project.

Within the project are two files:

- **RoboLang.g4** – This is where you should create your scanner.
- **test01.robo** – This is an input file to use to test your scanner.

You should use ANTLRWorks to edit and test your scanner.

Be warned that I may test your scanner on different input when I grade it! Feel free to create additional input files.

Submitting

To submit, simply commit your completed **RoboLang.g4** file to the repository.