COMP 524-PROGRAMMING LANGUAGES ECLIPSE DIFFICULTY/HELPER PLUGIN

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- Motivation for Difficulty Detection
- Installing Plug-In
- Setting Difficulty Status
- Receiving Inferred Difficulty Notifications
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MOTIVATION: WHY DETECT PROGRAMMER DIFFICULTY

Introspection: review your pain points and solutions.

Collaboration: Manual or automated help on difficulty detection

Inspection/testing: Correlation between difficulty and bugs?

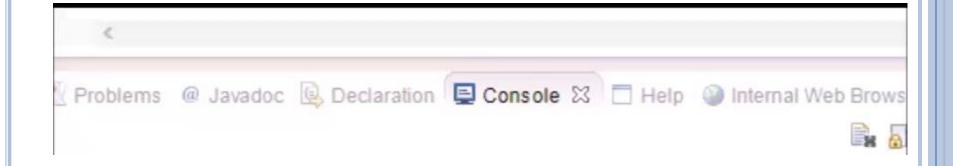
Task and document adaptation



DETECTION OF PROGRAMMING DIFFICULTY (SLOW PROGRESS)

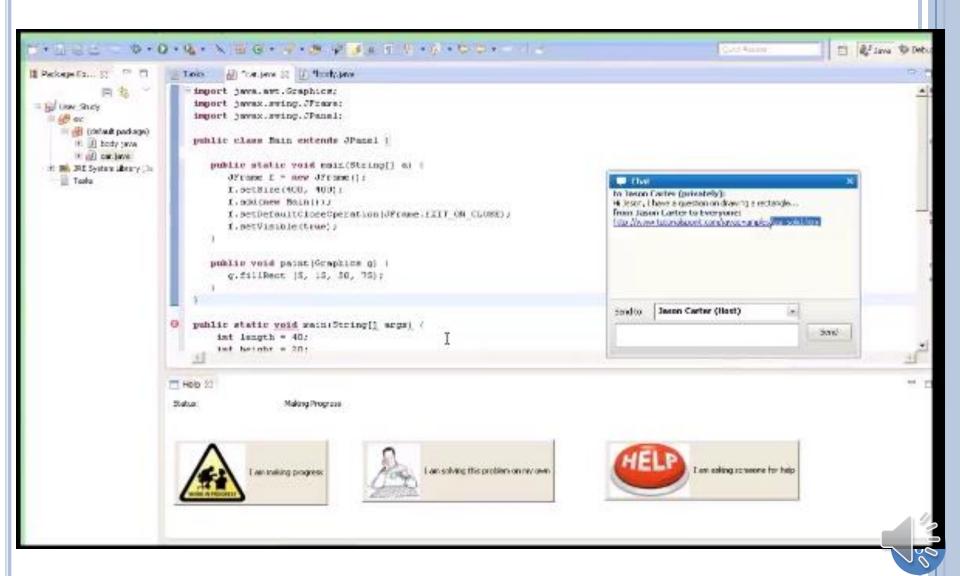
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File Edit Yew History Bookwarks 3ook Help
 Lesson: Working with Geometry (The Jav... .: 🔁 Graphics2D (Java Platform 55.7.)
                                                                                                                              Experience sava
                                                                                                                                                                                          × 🚊 Java Single GLI Programming Examples .... × +
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                               typingArea.requestFocusInWindow();
                        * We have to jump through some hoops to avoid
                       * trying to print non-printing characters
                        * such as Shift. (Not only do they not print,
                       * but if you put them in a String, the characters
                       * afterward won't show up in the text area.)
                     private void displayInfo(KeyEvent e, String keyStatus){
                               //You should only rely on the key char if the event
                               //is a key typed event.
                               int id - e.getID():
                               String keyString;
                               if (id -- KeyEvent.KEY TYPED) (
                                       char c = e.getXeyChar();
                                       keyString = "key character = "" + c + """;
                                       int keyCode = e.getKeyCode();
                                       keyString = "key code = " + keyCode
                                                          + KeyEvent.getKeyText(keyCode)
                              int modifiersEx = e.getModifiersEx();
                              String modString = "extended modifiers = " + modifiersEx;
String tmpString = KeyEvent.getModifiersExText(modifiersEx);
                               if (tmpString.length() > 0)
                                        modString += " (" + tmpString + ")";
                                       modString += " (no extended modifiers)";
                              String actionString = "action key? ";
                              if (e.isActionKey()) {
                                       actionString += "YES";
                               } else {
                                       actionString += "NO";
                              String locationString - "key location: ";
                               int location = e.getKeyLocation();
                              if (location == KeyEvent.KEY_LOCATION_STANDARD) {
                                       locationString += "standard";
                                 else if (location -- KeyEvent.KEY_LOCATION_LEFT) (
                                       locationString += "left";
                              } else if (location == KeyEvent.KEY_LOCATION_RIGHT) {
🗗 Stort 🚾 C:\WinDOWS\syste... 🧱 Camtasia Studio - U... 🐧 Java - User_Study/... 🔝
                                                                                                                                                                                     Recording.
                                                                                                                                                                                                                                                                                         « $ 500 € 11:40 AM
                                                                                                                                                                                                                               ■ KeyEventDemo.jav.
```

STATUS INFERENCE → STATUS COMMUNICATION





STATUS INFERENCE → COLLABORATIVE DIFFICULTY RESOLUTION



DATA FOR DIFFICULTY DETECTION

Program

Test case data

Programming Environment Commands

Web Accesses



DATA FOR DIFFICULTY DETECTION

- ➡ > PL_Prolog [PLTeaching master]
 - > 🗁 > bin
- 🕶 🗁 Logs
 - 🕶 🔄 Eclipse
 - R Log2019-08-13-12-28-01-019.xml
 - R Log2019-08-15-20-48-51-046.xml
 - Log2019-08-16-10-30-24-574.xml
 - Log2019-08-18-13-48-25-796.xml
 - Log2019-08-22-07-43-42-694.xml
 - Metrics
 - Metrics2019-08-13-12-28-01-019.csv
 - Metrics2019-08-15-20-48-51-046.csv
 - Metrics2019-08-16-10-30-24-574.csv
- Y 🔄 src
 - 🖪 pass.pl



RAW DATA: ECLIPSE COMMANDS

```
1 ○ < Events startTimestamp="1565713681019" logVersion="1.0.0.1" >
             <Command id="116" type="ShellCommand" date="Tue Aug 13 12:42:49 EDT 2019" timestamp="888898" typ</pre>
            <Command id="117" type="ShellCommand" date="Tue Aug 13 12:42:52 EDT 2019" timestamp="890994" typ</pre>
            <Command __id="118" _type="ShellCommand" date="Tue Aug 13 12:42:55 EDT 2019" timestamp="894560" type="ShellCommand" date="ShellCommand" date="ShellComm
        <Command __id="119" _type="ShellCommand" date="Tue Aug 13 12:42:56 EDT 2019" timestamp="894996" typ</pre>
  6 <Command __id="120" _type="MoveCaretCommand" caretOffset="72" date="Tue Aug 13 12:43:13 EDT 2019" d
7□ <Command __id="121" _type="EHExceptionCommand" date="Tue Aug 13 12:43:28 EDT 2019" timestamp="92708"
                 <outputString><![CDATA[consult('D:/dewan backup/Java/eclipse/test-prolog/srd/test.pl').</pre>
  9 11></outputString>
        </Command>
10
11 < Command __id="122" _type="EHExceptionCommand" date="Tue Aug 13 12:43:28 EDT 2019" timestamp="92748"
               <outputString><![CDATA[true.</pre>
12⊖
13
14
15 Welcome to SWI-Prolog (threaded, 64 bits, version 8.0.2)
16 SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
17 Please run ?- license. for legal details.
18
19 For online help and background, visit http://www.swi-prolog.org
20 For built-in help, use ?- help(Topic). or ?- apropos(Word).
21 || ></outputString>
22 </Command>
23@ <Command __id="124" _type="InsertStringCommand" date="Tue Aug 13 12:43:33 EDT 2019" repeat="4" time</pre>
                 <data><![CDATA[like]]></data>
24
25
            </Command>
```



METRICS

ld	Prediction	Date File	StartTime	ElapsedTi	BusyTime	Command	searchPer	debugPer	focusPerc	editPercer	removePe	insertPerc	COMMAN	NAVIGATI	DEBUG R	FOCUS R/	EDIT RATII
	NO	Sun Oct 27Test2.java	1.57E+12	24763	0	(E I)4	0	0	0	100	0	1	0.166667	0		0	0.166667
	NO	Sun Oct 27Test2.java	1.57E+12														
2	NO	Sun Oct 27Test2.java	1.57E+12	461404	0	(E R)1(R)1	0	0	50	50	0	0.25	0.008677	0	C	0.004338	0.004338
	NO	Sun Oct 27Test2.java	1.57E+12														
3	YES	Sun Oct 27Test2.java	1.57E+12	76811	0	(F)2	0	0	100	0	0	0	0.026316	0	C	0.026316	0
	YES	Sun Oct 27Test2.java	1.57E+12														
4	NO	Sun Oct 27 Metrics 20	1.57E+12	7823	7823	(F)2(E I)1	0	0	66.66667	33.33333	0	0.333333	0.428571	0	C	0.285714	0.142857
	NO	Sun Oct 27 Metrics 20	1.57E+12														
5	NO	Sun Oct 27 Metrics 20	1.57E+12	44040	0	(E I)1	0	0	0	100	0	1	0.022727	0	C	0	0.022727
	NO	Sun Oct 27 Metrics 20	1.57E+12														
(YES	Sun Oct 27 Metrics 20	1.57E+12	161498	0	(F)4	0	0	100	0	0	0	0.024845	0	C	0.024845	0
_	YES	Sun Oct 27 Metrics 20	1.57E+12														



CHROME ACCESSES

[]									
[]									
[15657146	15657146	rules	goals and	queries ht	tp://www.	ablmcc.ed	u.hk/~scy/	prolog/pro	o02
[]									
[15657146	15657146	rules	goals and	15657147	15657148	00335 1 U	ser input ir	prolog - S	tac
[15657148	15657148	15657149	15657149	53554 1 co	mparison	http://ww	w.cse.unsv	v.edu.au/^	ʻbil
[]									
[]									
[]									
[]									
[15657150	rules	goals and	15657150	56303 1 ru	les in prolo	og - Google	Search ht	tps://www	,gc
•						0		. ,,	_

No Facebook accesses, log "safe" accesses (piazza, stackoverflow, edu sites – can disable some)

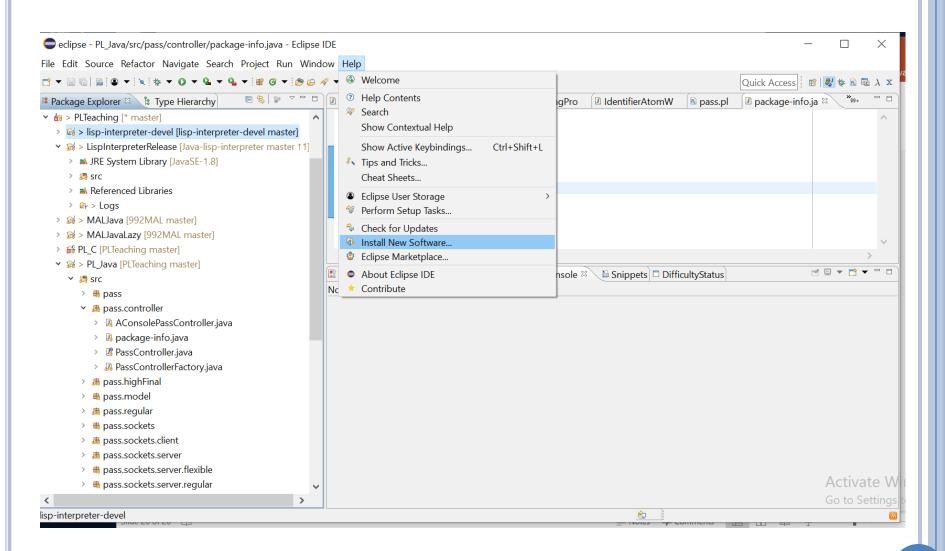


(Un) Installing Plug-in

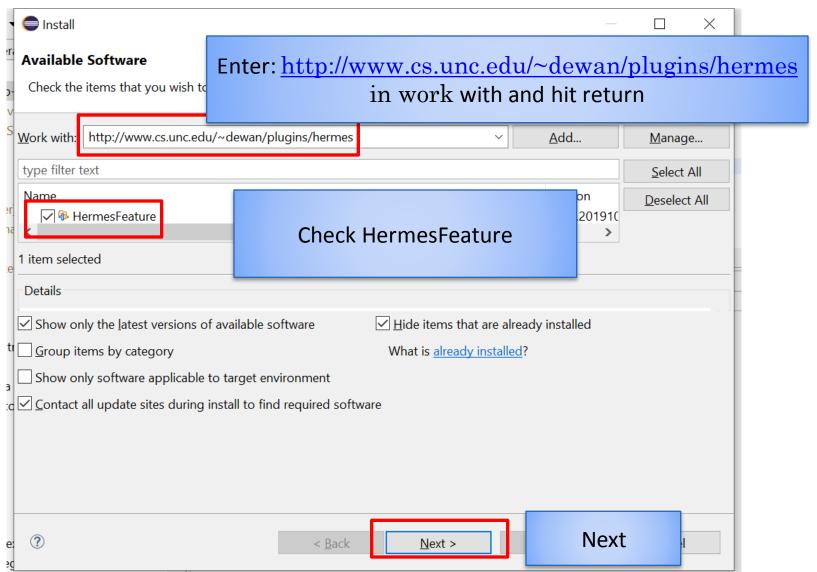
A plug-in can possibly misbehave/slow you down

We show you both how to install it and uninstall it

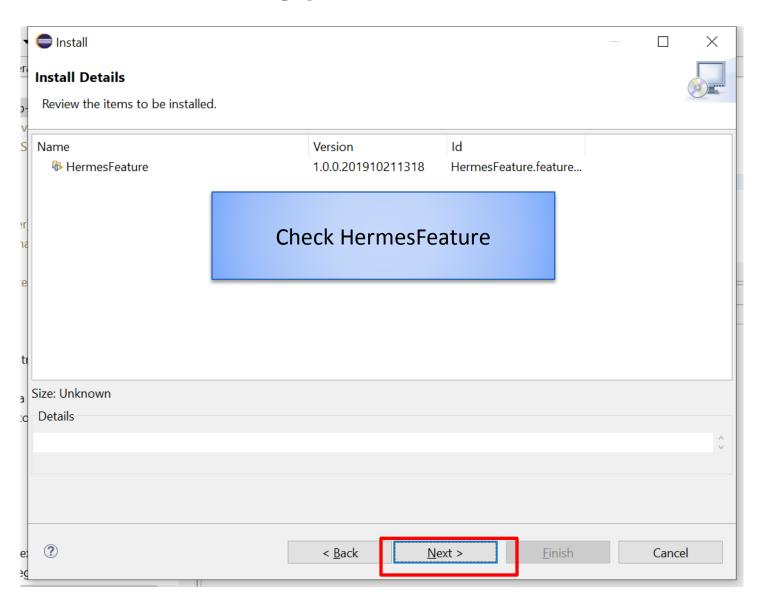
Help→Install New Software



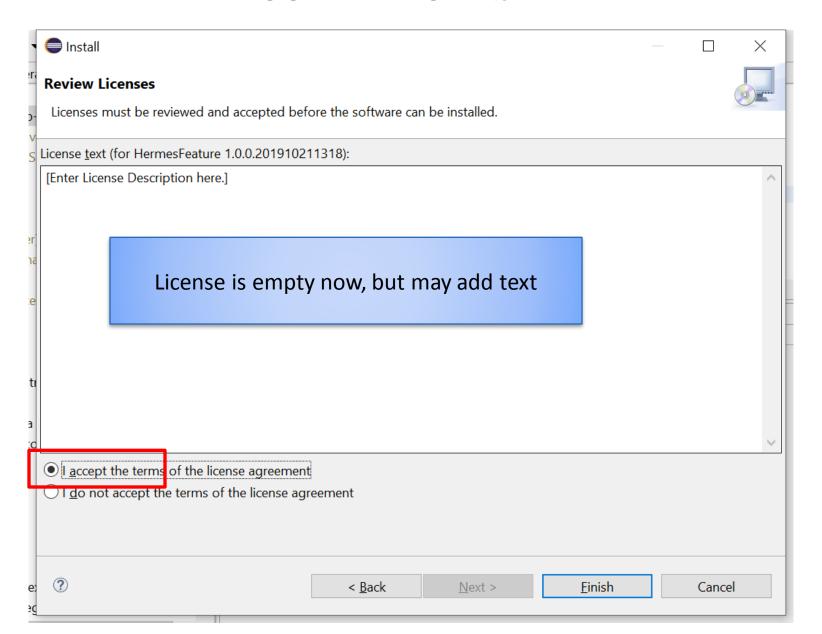
HERMES PLUG-IN SITE AND CHECK HERMES:



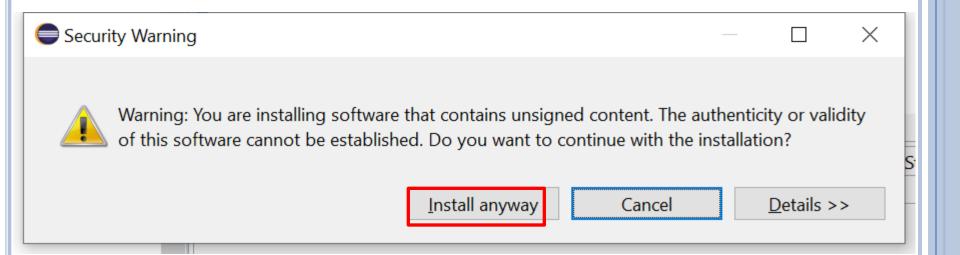
CONFIRM



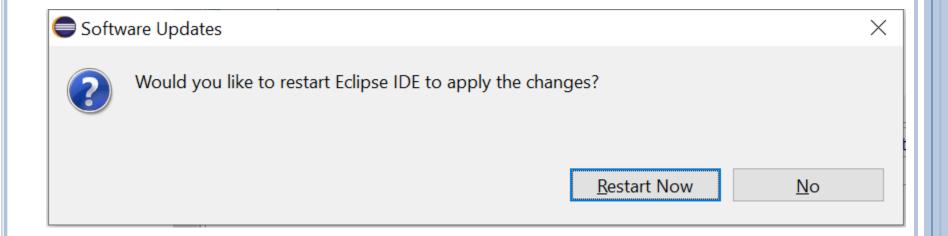
ACCEPT LICENSE



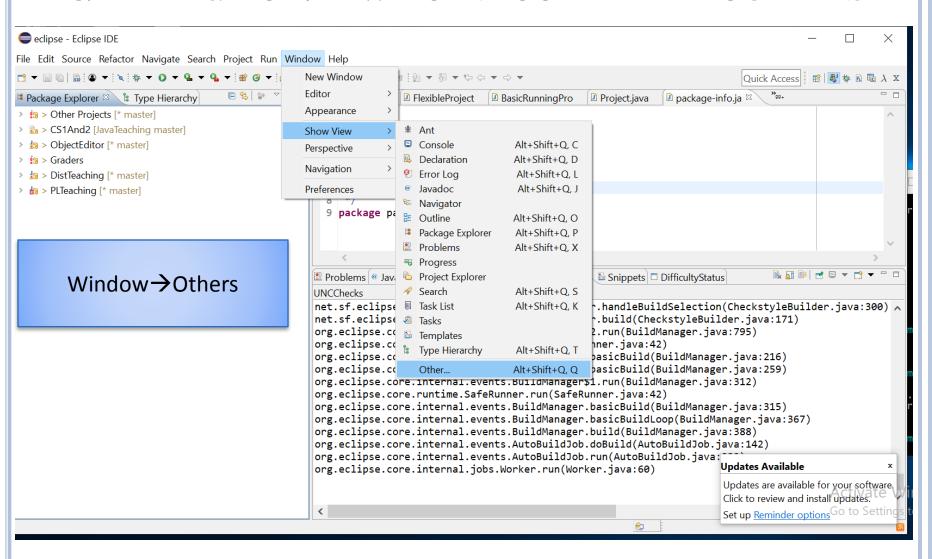
TRUST US



RESTART ECLIPSE



GETTING TO VIEW TO RECORD DIFFICULTIES



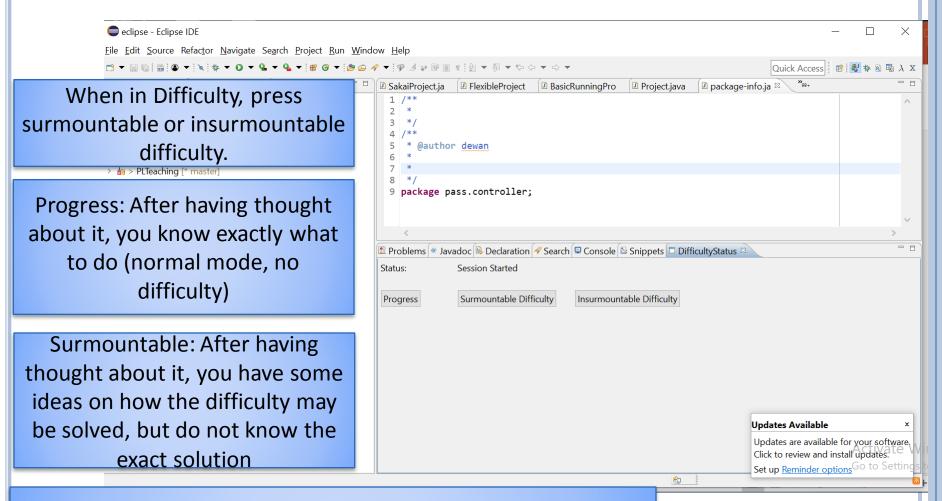
OPEN VIEW

Show View \times type filter text > 🗁 Git > 🗁 Gradle > 🗁 Help ✓

 Hermes □ DifficultyStatus Hermes > 🗁 Java > 🗁 Java Browsing 🕶 🗁 Lisp Cancel <u>O</u>pen org.eclipse.core.internal.events.BuildManage

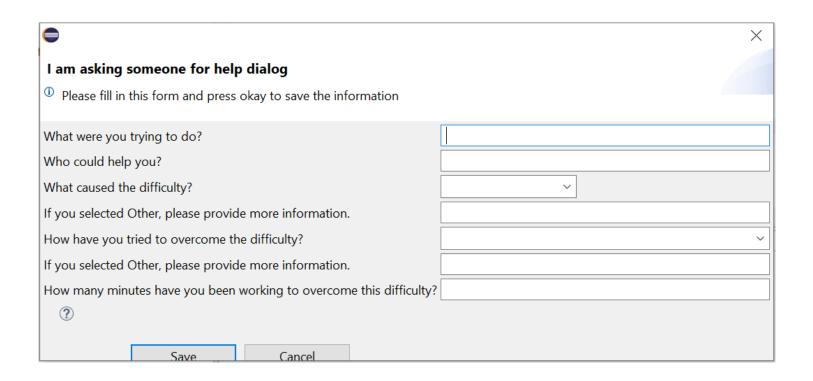
Hermes → DifficultyStatus

DIFFICULTY STATUS VIEW

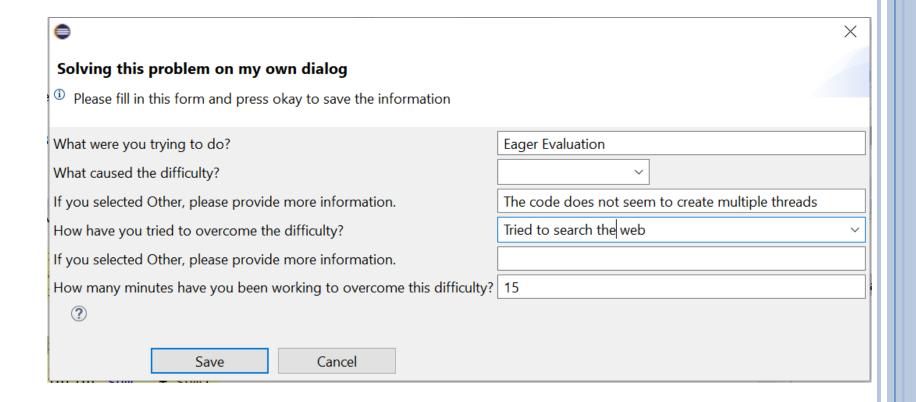


Insurmountable: After having thought about it, you have no clue right now on how to solve the problem and are stopping to ask for help or think later

ELABORATE ON SURMOUNTABLE OR INSURMOUNTABLE DIFFICULTY

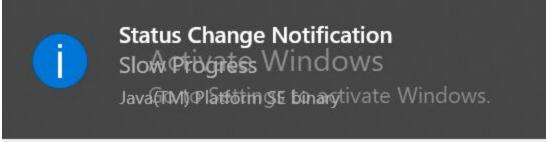


EXAMPLE FILLED FORM



Configuring Plug-in Before or after Installing It

This is an optional step in case you want to receive difficult and non-difficulty notifications, called slow progress and making progress which you can correct



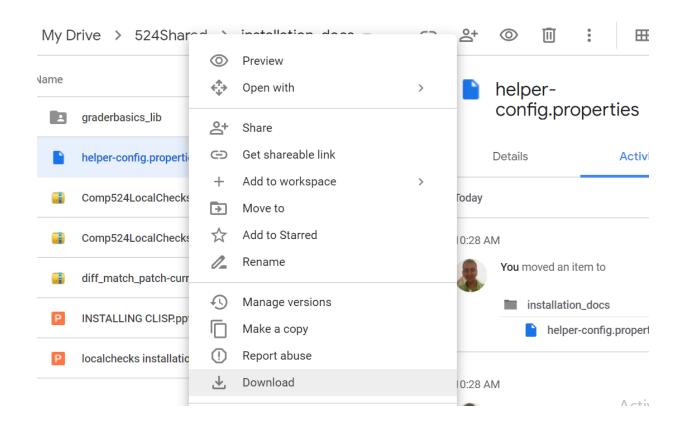
Status Change Notification
Makingi Protgress indows

Java@M)@16ttotings binarytivate Windows.

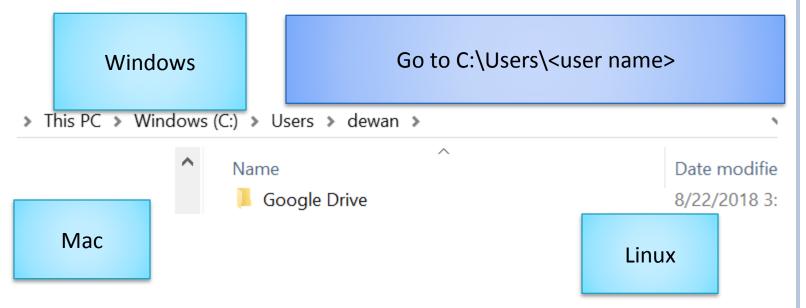
DOWNLOAD CONFIGURATION FILE

Go to google drive:

https://drive.google.com/drive/u/1/folders/1A QrdEHvKSQZIAwEuezpkOhA8hiZBtMdj Right Click helperconfig.properties and select download



NAVIGATE TO YOUR HOME DIRECTORY



How to find your Home folder

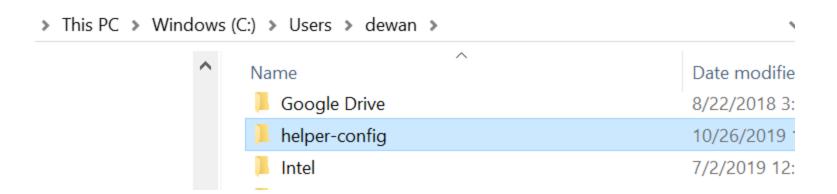
To find your Home folder, open Finder and use the keyboard shortcut **Command-Shift-H**. You can use the Go pull-down menu from the menu bar to go to the Home folder. (Oddly, the home folder is called Home in this menu.)



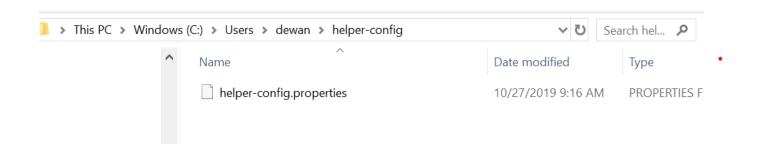
Go to ~/<user name>

CREATE SUB DIRECTORY IN HOME

Create helper-config in Home directory



MOVE DOWNLOADED FILE TO SUBDIRECTORY

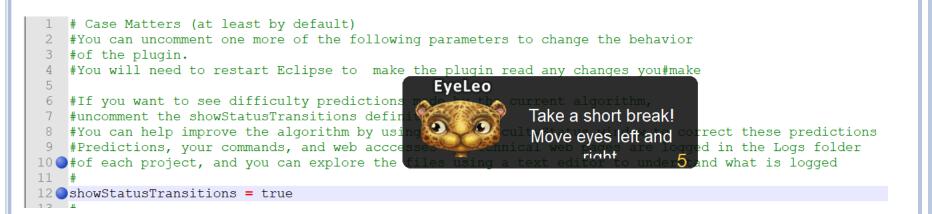


USE TEXT EDITOR TO OPEN IT

```
# Case Matters (at least by default)
# You can uncomment one more of the following parameters to change the behavior
# of the plugin.
# You will need to restart Eclipse to make the plugin read any changes you#make

# If you want to see difficulty predictions made by the current algorithm,
# uncomment the showStatusTransitions definition.
# You can help improve the algorithm by using the DifficultyStatus window to correct these predictions
# Predictions, your commands, and web accesses to technical web pages are logged in the Logs folder
# of each project, and you can explore the files using a text editor to understand what is logged
# showStatusTransitions = true
# showStatusTransitions = true
```

Uncomment showStatusTransitions



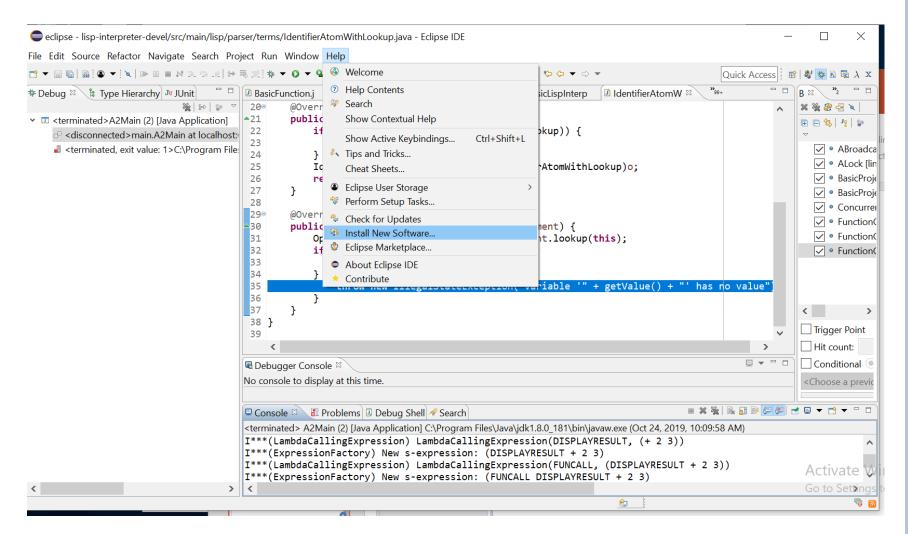
Line 12 to be uncommented

RESTART ECLIPSE

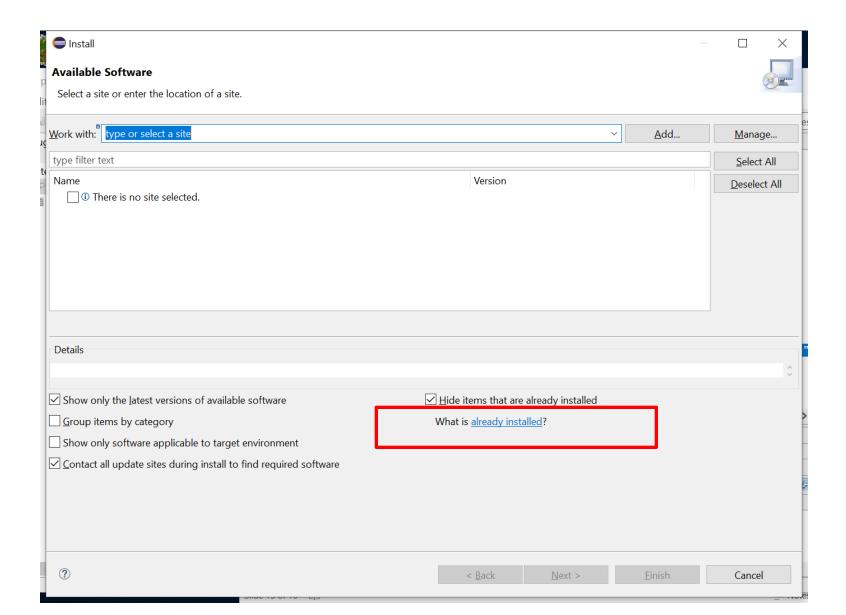
File is read when Eclipse Starts Up

Uninstalling Plugin

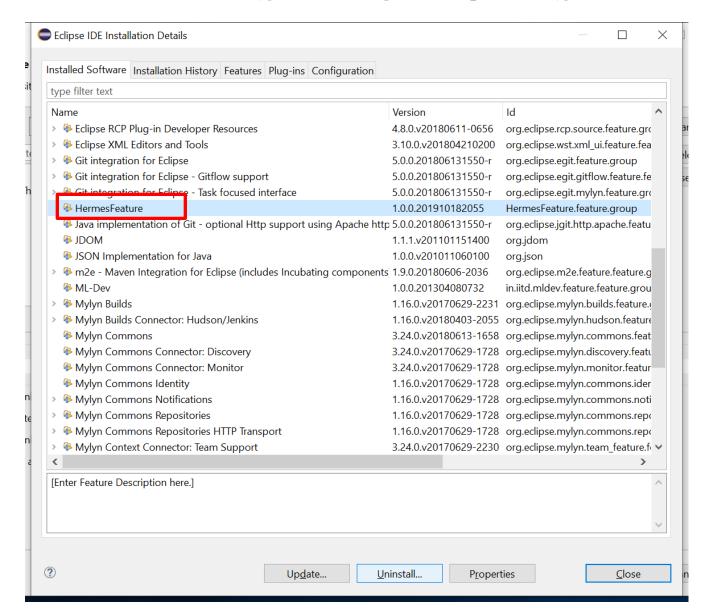
Help→Install New Software



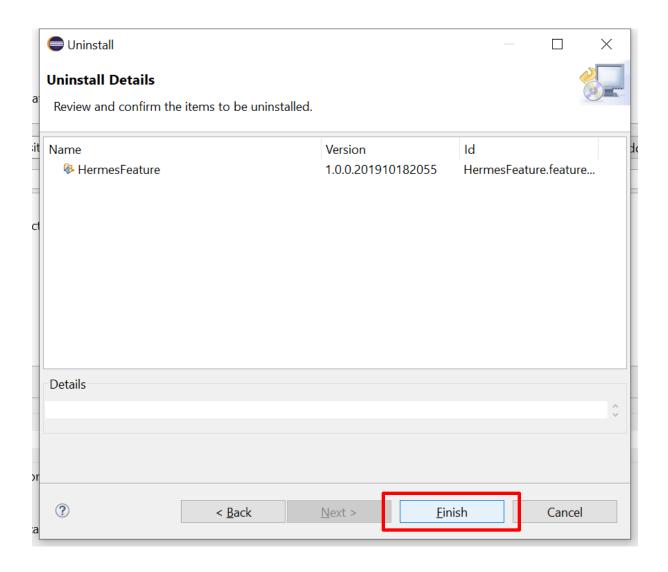
CLICK ON: ALREADY INSTALLED



HERMESFEATURE UNINSTALL



CLICK FINISH



RESTART ECLIPSE

