

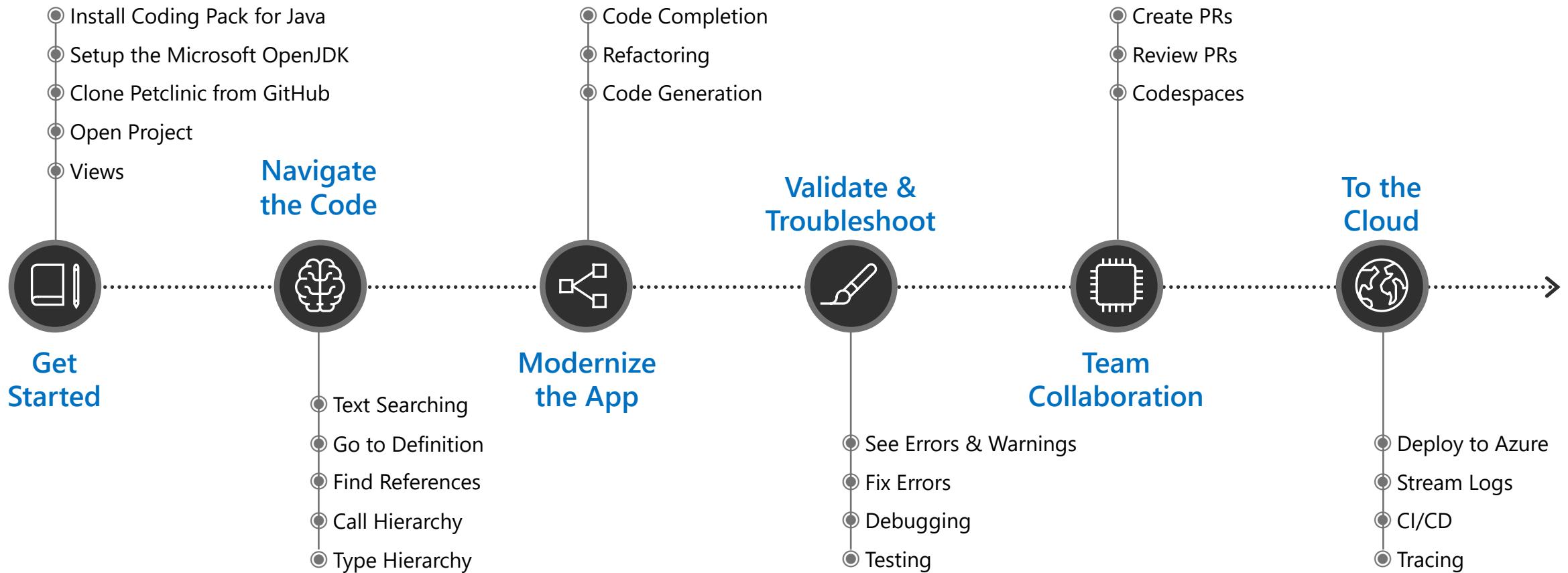


Getting started with VS code and Java

Rory Preddy @RoryPreddy 



Capabilities



Get Started (Installation)



Download & install

<https://www.microsoft.com/openjdk>



Download & install

<https://code.visualstudio.com/>



Launch VS Code & install **Java**

Extension pack from the
marketplace

Or



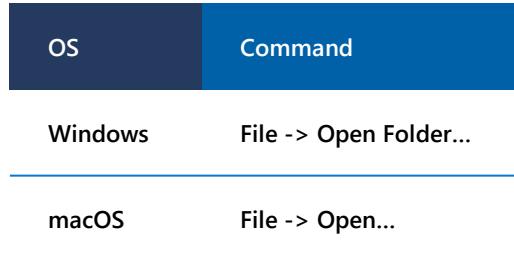
<https://aka.ms/coding-pack>

* If you only have JDK 8 or earlier installed, you need to install a JDK 11+ side by side to run the tools

Get Started (Load Projects)

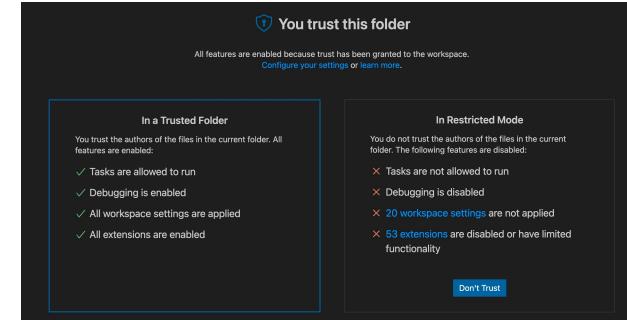
1

Load projects by **Opening Folders**



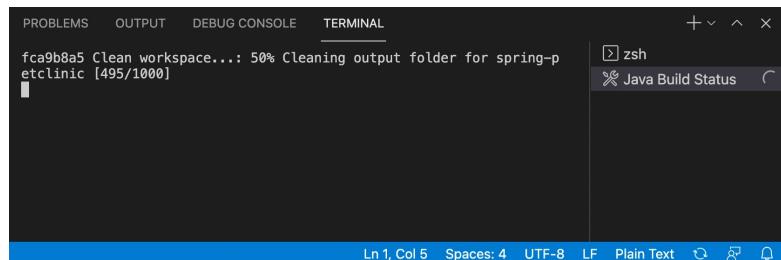
2

Workspace Trust is needed to enable all features. Please only trust the folder you cloned from a trustworthy source



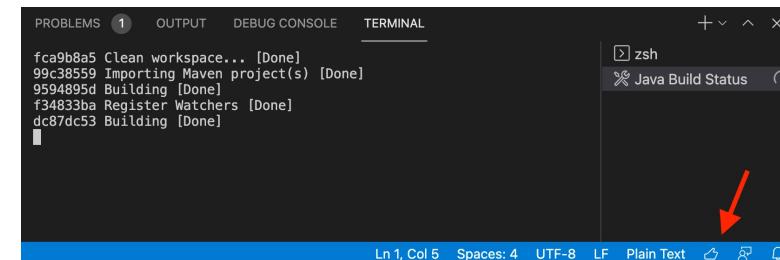
3

You can **View Build Status** by clicking the spinning icon on status bar



4

All features are **ready** when the project are fully imported



Get Started - Project Explorer

- Inspect your packages
- Run/debug applications
- Export JARs

The screenshot shows the VS Code interface with the following details:

- Project Explorer (Left):** Shows the project structure under "JAVA PROJECTS". A red box highlights the "spring-petclinic" package, which contains "src/main/java", "src/test/java", and several source files like "Owner", "OwnerController", etc.
- Editor (Right):** Displays the code for "OwnerController.java". The class definition is shown, along with annotations like "@InitBinder" and "@GetMapping". The code is attributed to Michael Isvy.
- Bottom Status Bar:** Shows the current branch as "master*", file count (0), changes (1), and line count (1).
- Bottom Activity Bar:** Includes tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, and TERMINAL.

Inspect the Code

- **Right-click** on the symbols to Navigate
- **Hover** to show Javadocs
- **Ctrl/Command + Click** to Go to Definition

The screenshot shows a code editor window in VS Code displaying `OwnerController.java`. A context menu is open over the word `owner` at line 67. The menu items are:

- Go to Definition (F12)
- Go to Type Definition
- Go to Implementations (⌘ F12)
- Go to References (⇧ F12)
- Go to Super Implementation
- Peek (with a dropdown arrow)
- Find All References (⌃ ⌘ F12)
- Find All Implementations
- Show Call Hierarchy (⌃ ⌘ H)
- Show Type Hierarchy

The menu is highlighted with a red box.

At the bottom of the screen, there is a terminal window showing a zsh shell and a Java Build tool window.

Code Editing – Auto-completion

- **Type** to see suggestions
 - **Ctrl + Space** to show suggestions

OwnerController.java 1 ●

(TM) by Red Hat > OwnerController > processFindForm(Owner, BindingResult, Map<String, Object>)

```
13
74     @GetMapping("/owners/find")
75     public String initFindForm(Map<String, Object> model) {
76         model.put("owner", new Owner());
77         return "owners/findOwners";
78     }
79
80     @GetMapping("/owners")
81     public String processFindForm(Owner owner, BindingResult result,
82
83         // allow parameterless GET request for /owners to return all
84         if (owner.getLastName() == null) {
85             owner.setLastName(""); // empty string signifies broadest
86         }
87
88         // find owners by last name
89         Collection<Owner> results = this.owners.findByLastName(owner.
90
91         for You, seconds ago • Uncommitted changes
92         for
93         if [ ] foreach iterate over an array or Iterable
94             fori
95                 ForAbstractMethod - net.bytebuddy.dynamic.scaffold.M...
96                 ForAdvice - net.bytebuddy.agent.builder.AgentBuilder...
97             } e o ForAdvice - net.bytebuddy.asm.Advice.ArgumentHandler
98                 o ForAdvice - net.bytebuddy.asm.Advice.MethodSizeHandle...
                 o ForAdvice - net.bytebuddy.asm.Advice.StackMapFrameHa...
                 ForAllArguments - net.bytebuddy.asm.Advice.OffsetMap...
                 ForAnnotation - net.bytebuddy.dynamic.scaffold.TypeW...
                 ForAnnotationDescription - net.bytebuddy.description...
                 ForAnnotationProperty - net.bytebuddy.pool.TypePool...
PROBLEMS 2
overwritten by merge
.vscod...
.pom.xml
Please commit your changes or stash them before you merge.
Aborting
roml@Romes-MacBook-Pro-16: spring-petclinic %
```

Code Editing - Refactoring

- **Right-click -> Refactor...** to show refactoring options
 - **F2** to **Rename**

OwnerController.java — spring-petclinic

```
... OwnerController.java X ▷ ▾  
(TM) by Red Hat > OwnerController > processFindForm(Owner, BindingRe  
13  
74     @GetMapping("/owners/find")  
75     public String initFindForm(Map<String, Object> model)  
76         model.put("owner", new Owner());  
77         return "owners/findOwners";  
78     }  
79  
80     @GetMapping("/owners")  
81     public String processFindForm(Owner owner, BindingRe  
82  
83         // al  
84         if (o  
85             o  
86             }  
87         Gordon  
88         // fi  
89         Colle  
90         if (r  
91             /  
92             r  
93             r  
94         } els  
95             /  
96             o  
97             r  
98         } els
```

Go to Definition F12 For /owners t
Go to Type Definition
Go to Implementations ⌘F12
Go to References ⌘F12
Go to Super Implementation
Peek >
Find All References ⌘⇧F12
Find All Implementations ⌘⇧H
Show Call Hierarchy ⌘⇧H
Show Type Hierarchy
Rename Symbol F2
Change All Occurrences ⌘ F2
Format Document ⌘⇧F ()
Format Document With...
Format Selection ⌘K ⌘F1
PROBLEMS 1 OUTPU overwritten by merge
overwritten by merge .vscode/sett
overwritten by merge pom.xml
overwritten by merge Please commit your c
overwritten by merge Aborting
overwritten by merge roml@Romes-MacBook-P
SHBOARD
0 △ 1 ☰ 1 ⌂ Gordon Dickens, 8 years ago via PR #2 Ln 87, C
COMMENTS merge.
LF Java

Code Editing – Code Generation

- **Right-click -> Source Action...** to see Code Generation options
- **Option + Shift + O** to Organize Imports

The screenshot shows a Java file named `OwnerController.java` open in VS Code. A context menu is displayed over the code, listing various code generation and refactoring options. The option `Source Action...` is highlighted with a red box.

Code snippet from `OwnerController.java`:

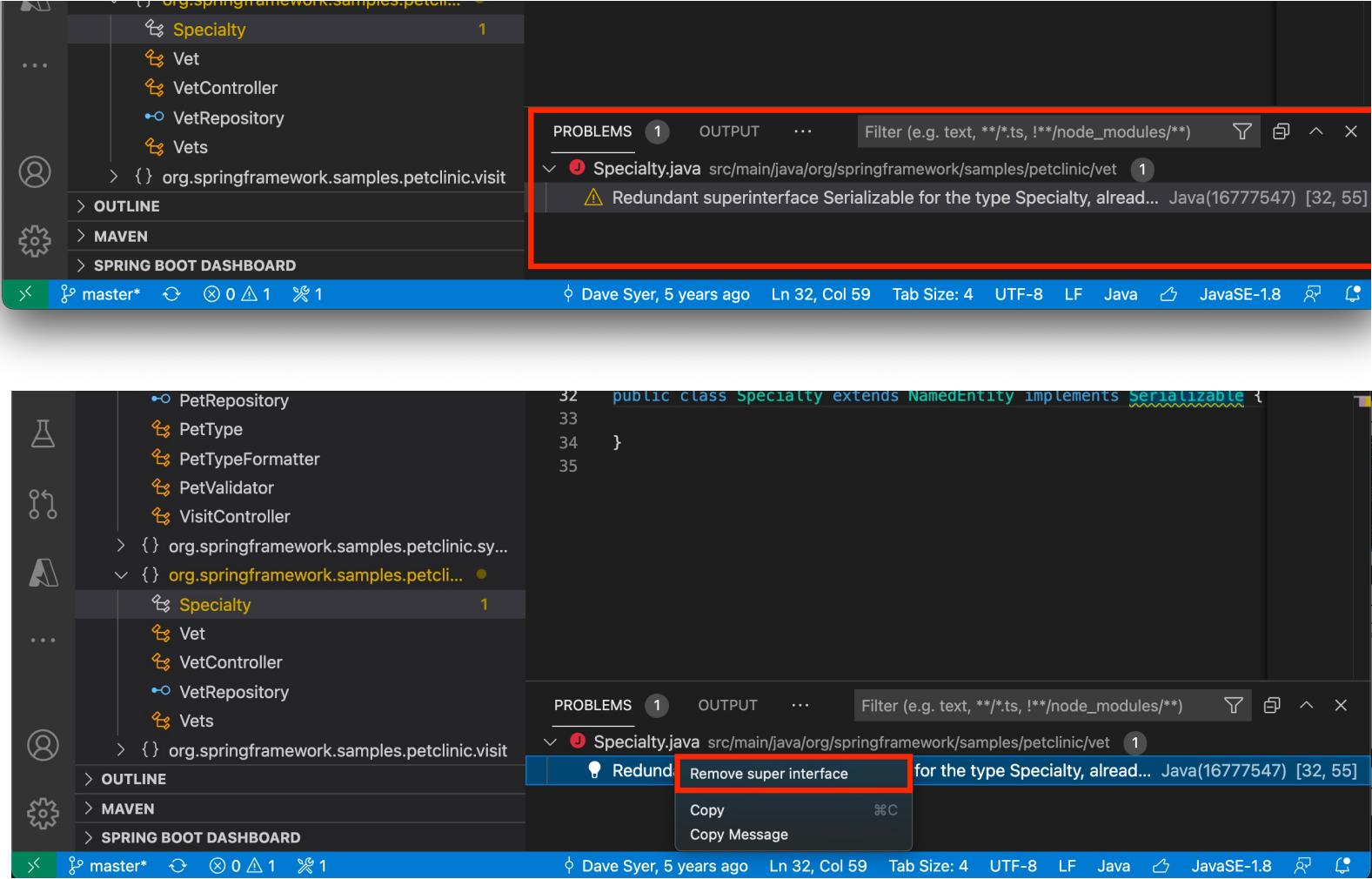
```
(TM) by Red Hat > OwnerController > processFindForm(Owner, BindingRe...  
74 @GetMapping("/owners/find")  
75 public String initFindForm(Map<String, Object> model)  
76     model.put("owner", new Owner());  
77     return "owners/findOwners";  
78 }  
79  
80 @GetMapping("/owners")  
81 public String processFindForm(Owner owner, BindingRe...  
82 // allow parameterless GET request for /owners to  
83 if (owner.getLa...  
84     owner.setLa...  
85 }  
86  
87 Gordon Dickens, 8  
88 // find owners  
89 Collection<Owner> results = ownerRepository.findAll();  
90 if (results.isEmpty())  
91     // no owner found  
92     result.reject("no owner found");  
93     return "owners/empty";  
94 } else if (results.size() == 1)  
95     // 1 owner found  
96     owner = results.get(0);  
97     return "red...  
98 } else {  
99     // multiple owners found  
100    result.reject("multiple owners found");  
101    return "owners/multi...  
102 }  
103  
104 OUTPUT DEBUG  
105  
106 em Library [JavaSE-1.8] overwritten by merge:  
107 .vscode/settings.json  
108 pom.xml  
109 Please commit your changes or  
110 Aborting  
111 roml@Romes-MacBook-Pro-16 sprin...  
112 0 △ 1 ✘ 1 Gordon Dickens, 8 years ago via PR #2 Ln 87,
```

Context menu options (highlighted `Source Action...`):

- Generate Tests...
- Organize imports
- Override/Implement Methods...
- Generate Getters and Setters...
- Generate hashCode() and equals()...
- Generate toString()...
- Generate Constructors...
- Generate Delegate Methods...
- Change modifiers to final where possible
- Go to Definition F12
- Go to Type Definition
- Go to Implementations ⌘F12
- Go to References
- Go to Super Implementation
- Peek
- Find All References ⌘⇧F12
- Find All Implementations
- Show Call Hierarchy ⌘⇧H
- Show Type Hierarchy
- Rename Symbol F2
- Change All Occurrences ⌘F2
- Format Document ⌘⇧F
- Format Document With...
- Refactor...
- Source Action... (highlighted)
- Commit Changes
- Cut ⌘X
- Copy ⌘C
- Copy As
- Paste ⌘V

Validate & Troubleshoot – See Errors & Warnings

- Go to **Problems** view to check build errors & warnings
- **Right-click on errors** to see quick-fixes



Validate & Troubleshoot – Fix Errors

- **Click on the lightbulb** to see Quick-fix options

OwnerController.java — spring-petclinic

... OwnerController.java X ▷ ▾

> Language Support for Java(TM) by Red Hat > 🐾 OwnerController > 🏠 OwnerController

```
37 * @author Michael Isvy
38 */
39 @Controller
40 class OwnerController {
41
42     private static final String VIEWS_OWNER_CREATE_OR_UPD...
43     private final OwnerRepository owners;
44     private VisitRepository visits;
45
46
47     public OwnerController(OwnerRepository clinicService, ...
48         this.owners = clinicService;           Dave Syer, 5 y
49         Extract to field
50         Extract to method
51         Extract to local variable (replace all occurrences)
52         Extract to local variable
53         Introduce Parameter...
54             databinder.setDisallowedActions("id");
55         }
56
57         @GetMapping("/owners/new")
58         public String initCreationForm(Map<String, Object> m
59             Owner owner = new Owner();
60             model.put("owner", owner);
61             return VIEWS_OWNER_CREATE_OR_UPDATE_FORM;
62         }
```

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL COMMENTS

overwritten by merge:
.vscode/settings.json
pom.xml

Please commit your changes or stash them before you merge.
Aborting

roml@Romes-MacBook-Pro-16 spring-petclinic %

Validate & Troubleshoot – Debugging

- **F5** to start debugging
- Use **DEBUG AND RUN** viewlet to inspect variables, callstacks and breakpoints
- Use the **Debug Toolbar** to control the execution

The screenshot shows the IntelliJ IDEA interface during a debug session. The title bar indicates the file is `OwnerController.java` from the `spring-petclinic` project. The `RUN AND DEBUG` toolbar at the top right contains several icons for controlling the debugger, including a play button, a step over icon, a step into icon, a step out icon, a refresh icon, a stop icon, and a terminate icon.

The left side of the screen features the **VARIABLES** viewlet, which is expanded to show the **Local** variables. It lists four variables:

- > owner: Owner@307 "[Owner@140ab29b id = [null...]
- > result: BeanPropertyBindingResult@308 "org.s...
- > model: BindingAwareModelMap@309
- > this: OwnerController@310

Below the Local section is the **WATCH** section, which is currently empty.

The main editor area displays the `OwnerController.java` code. A red box highlights the **CALL STACK** section, which shows the current thread state:

- Thread [http-nio-8080-exec-2] RUNNING
- Thread [http-nio-8080-...] PAUSED ON BREAKPOINT

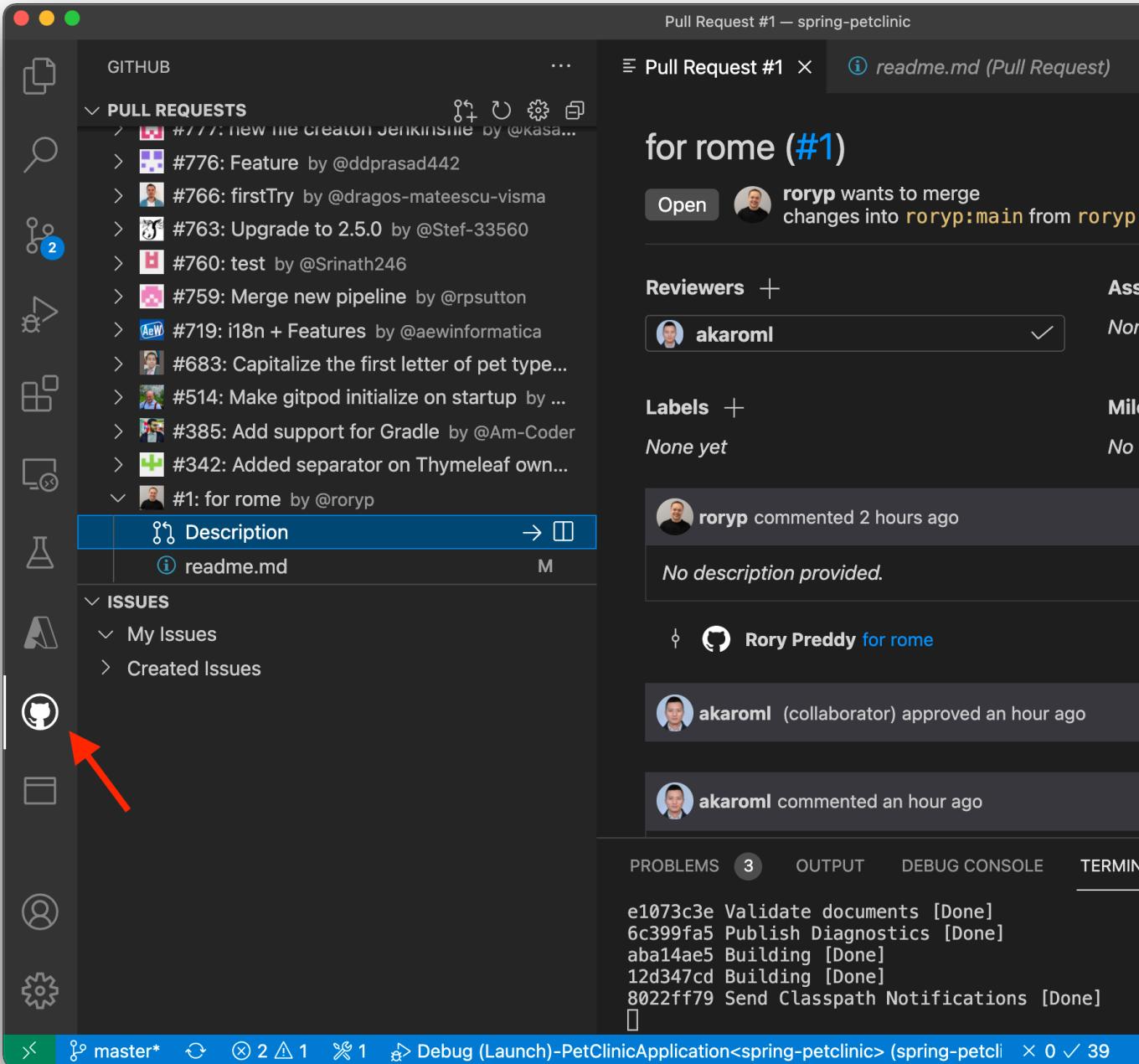
Underneath the call stack, the **BREAKPOINTS** section is shown, listing several breakpoints that are currently active (indicated by a checked checkbox). These include breakpoints for `AlreadyBoundException.class`, `AppendingBatchVisitor.class`, and `OwnerController.java`.

The bottom of the screen shows the **DEBUG CONSOLE** with some log output:

```
LtsPostProcessor : Devtools property defaults active! Set 'spring.devtools.property's to 'false' to disable
2021-07-15 17:24:44.840 INFO 23704 --- [ restartedMain] .e.DevToolsPropertiesPostProcessor : For additional web related logging consider setting the 'logging.level.web' property to 'DEBUG'
```

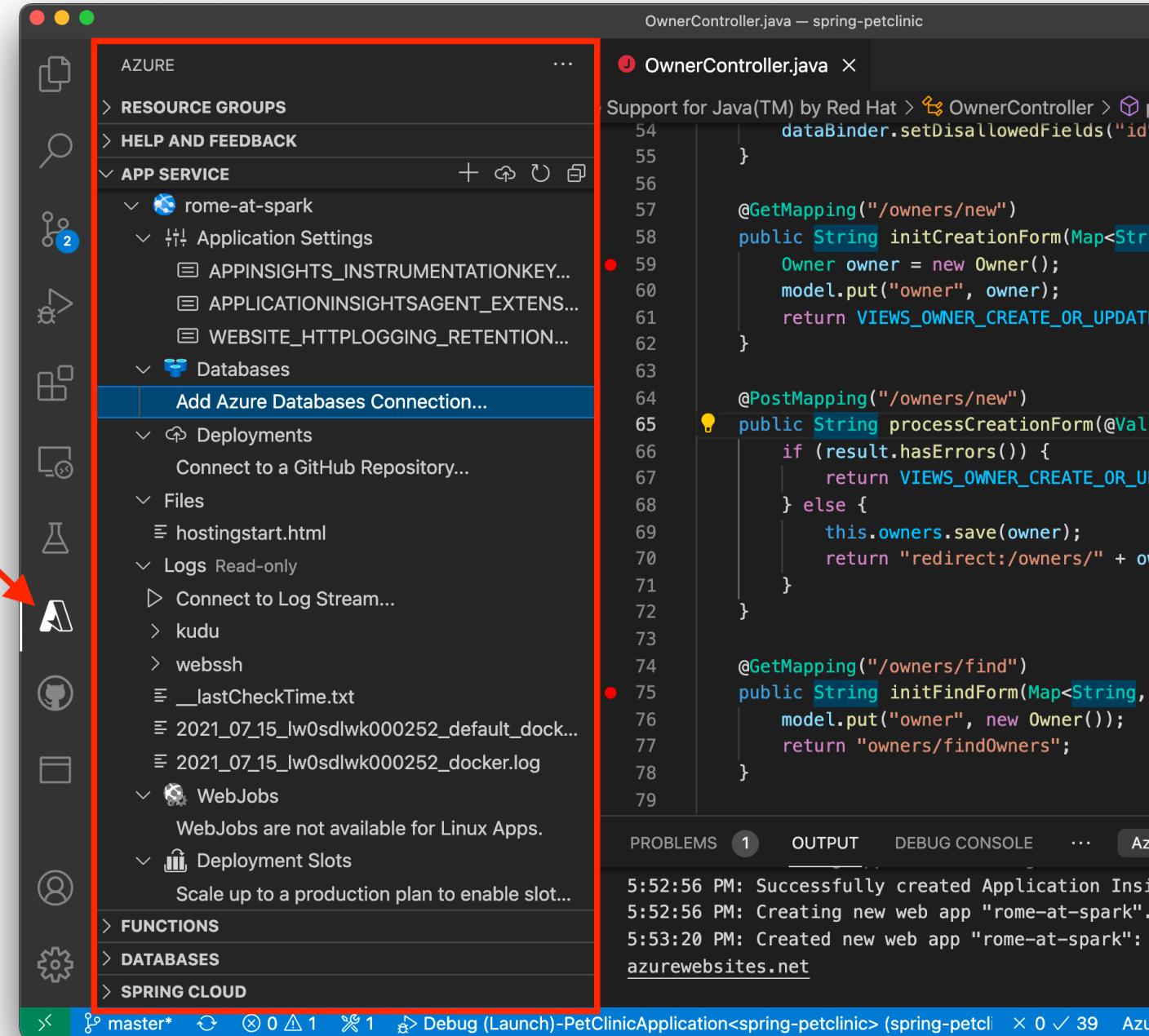
Team Collaboration

- Install **GitHub Pull Requests and Issues** from the marketplace
- **Create/Review PRs** in the **GitHub** viewlet



To the Cloud

- Use the **Azure** viewlet to manage cloud resources
- **Deploy** applications, **stream logs**, manage **DB** connections, **scale** out/up all in VS Code



The screenshot shows the VS Code interface with the Azure viewlet open. The viewlet displays a hierarchical menu under the APP SERVICE category, specifically the 'Databases' section. A red arrow points from the text 'Use the Azure viewlet to manage cloud resources' to the Azure icon in the left sidebar. The code editor on the right shows Java code for an OwnerController, and the bottom status bar indicates the current workspace and file status.

```
OwnerController.java — spring-petclinic
Support for Java(TM) by Red Hat > OwnerController > ...
54     }
55     }
56     }
57     @GetMapping("/owners/new")
58     public String initCreationForm(Map<String, Object> model) {
59         Owner owner = new Owner();
60         model.put("owner", owner);
61         return VIEWS_OWNER_CREATE_OR_UPDATE_FORM;
62     }
63
64     @PostMapping("/owners/new")
65     public String processCreationForm(@Valid Owner owner, BindingResult result) {
66         if (result.hasErrors()) {
67             return VIEWS_OWNER_CREATE_OR_UPDATE_FORM;
68         } else {
69             this.owners.save(owner);
70             return "redirect:/owners/" + owner.getId();
71         }
72     }
73
74     @GetMapping("/owners/find")
75     public String initFindForm(Map<String, Object> model) {
76         model.put("owner", new Owner());
77         return "owners/findOwners";
78     }
79 }

PROBLEMS 1 OUTPUT DEBUG CONSOLE ...
5:52:56 PM: Successfully created Application Insights resource
5:52:56 PM: Creating new web app "rome-at-spark"
5:53:20 PM: Created new web app "rome-at-spark": azurewebsites.net

OwnerController.java — spring-petclinic
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PROBLEMS 1 OUTPUT DEBUG CONSOLE ...
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Next Steps

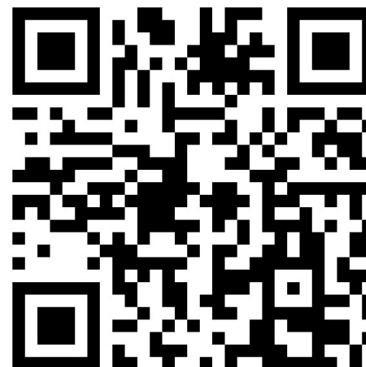
<https://aka.ms/java-learn-path>



<https://aka.ms/vs-code-java>



<https://aka.ms/spring-petclinic>



Reach out to @RoryPreddy 