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Test-Driven Development (TDD) for Eclipse RCP

Red-Green-Refactor!

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Test-Driven Development is a tool
for building quality software.
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We are all professional coders on a journey.
We're all looking to add just one more tool to our tool belt
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But, danger lurks in the Eclipse Platform for TDDers.
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It just seems too hard.
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We'll learn how to leverage existing tools and techniques to make TDD possible in Eclipse.

Easy, maybe?

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How are We Doing?

- Who uses JUnit consistently?
  - For Eclipse RCP applications?
- Who writes their tests first?
- Who writes their tests after?
  - Who finds time?

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Our plan for today.

- What is test-driven development?
- The tools of the trade

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TDD is writing your tests first.

It is a discipline

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TDD has a heartbeat.

- **Red** - Write a test that fails
- **Green** - Make it pass
- **Refactor** - Remove duplication

(rinse. repeat.)

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There are 3 benefits of doing TDD.

- API design
- Coding confidence
- DRY code (**D**on't **R**epeat **Y**ourself)

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Eclipse has put some hurdles in place.

- Separation of concerns
- OSGi wires bundles at runtime
- SWT Widgets are difficult to mock

```
protected void checkSubclass () {
    if (!isValidSubclass ()) error (SWT.ERROR_INVALID_SUBCLASS);
}
```

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Here are our tools of choice.

- JUnit and JMock
- PDE JUnit
- Model-View-Presenter (MVP) pattern

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JUnit and JMock

- Use for classes that are not dependent on Eclipse Platform API
- Particularly useful for testing business logic in model classes

PDE JUnit (Plug-in JUnit)

- Executed by a special test runner that launches another Eclipse instance in a separate VM
- Your tests can call the Eclipse Platform API, along with methods from your own plug-in

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Enable testing by creating layers.

- MVC
- MVP

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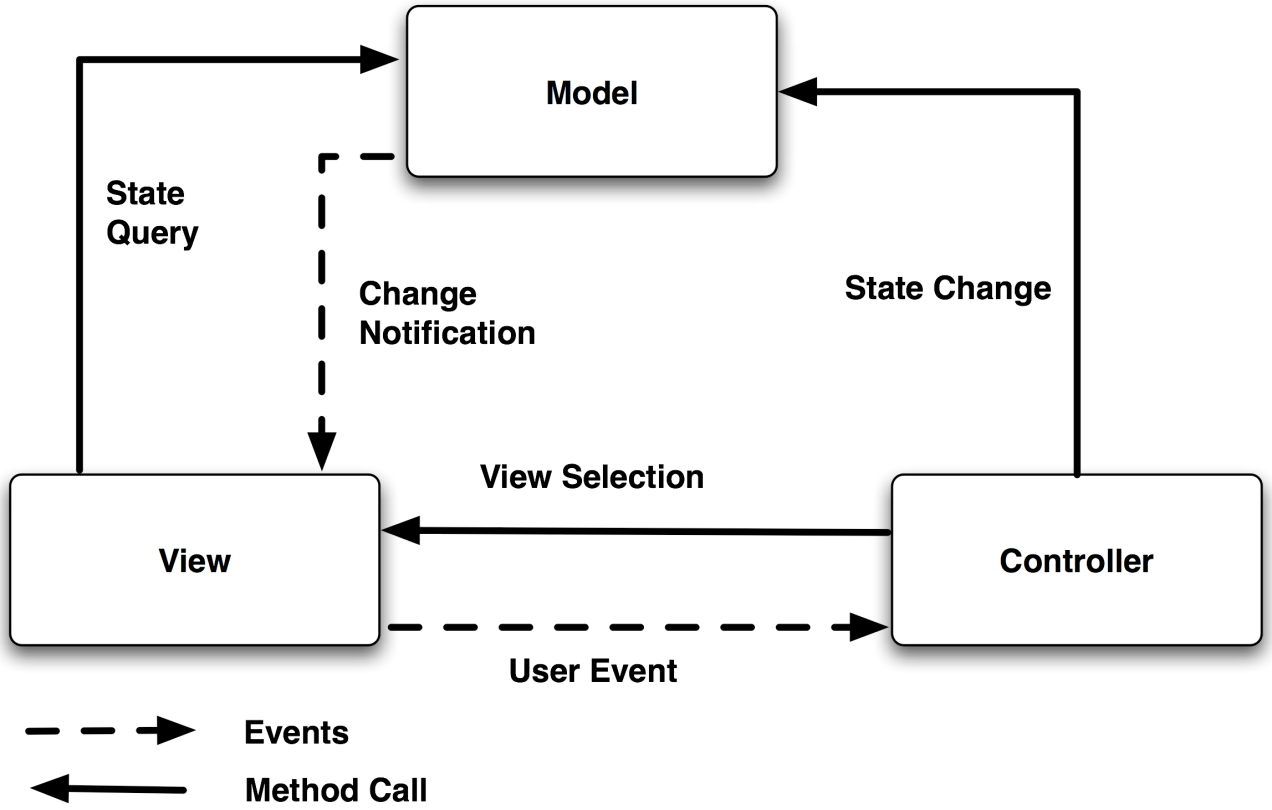
Model-View-Controller (MVC)



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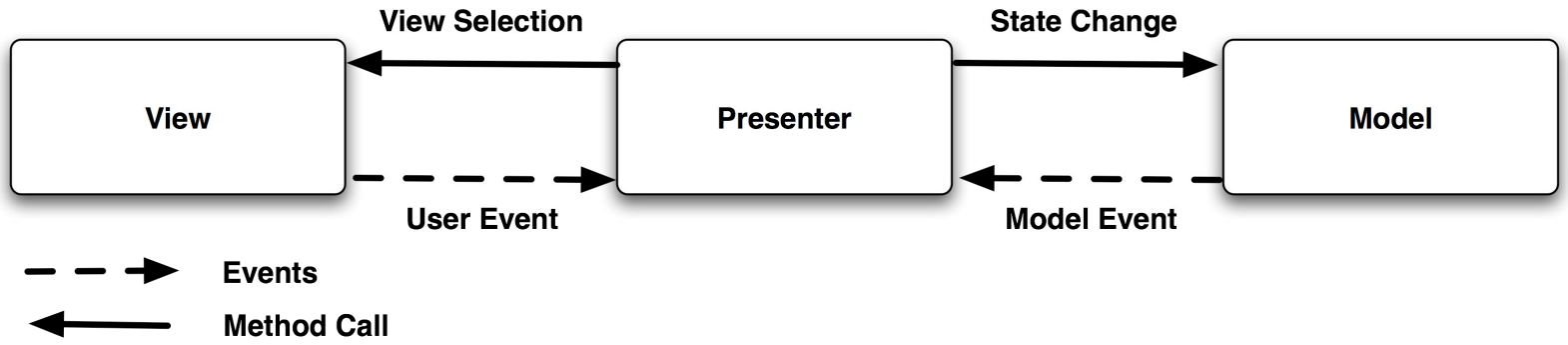
Model-View-Presenter (MVP)



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MVP will make your life easier.

- Separate concerns
- Minimize untested GUI code

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Don’t forget some functional testing!

- TDD is not a silver bullet
- Functional tests exercise code end-to-end:

  Presenter <-> Model <-> DB

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Functional and GUI testing tools are available.

- SWTBot
- TPTP
- IBM Rational Tester

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Exercise:

1. Whiteboard a GUI design
2. Use PDE JUnit to test drive a GUI ViewPart with a ListViewer and a toolbar “refresh” button
3. Use JUnit to test-drive a Presenter, Model, and cmdline (stub) View
4. Wire up the GUI and Presenter with PDE JUnit tests

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Conclusion

- TDD in Eclipse RCP takes extra discipline
- Red, Green, Refactor
- Leverage JUnit, PDE JUnit, and MVP
- Throw in some functional tests

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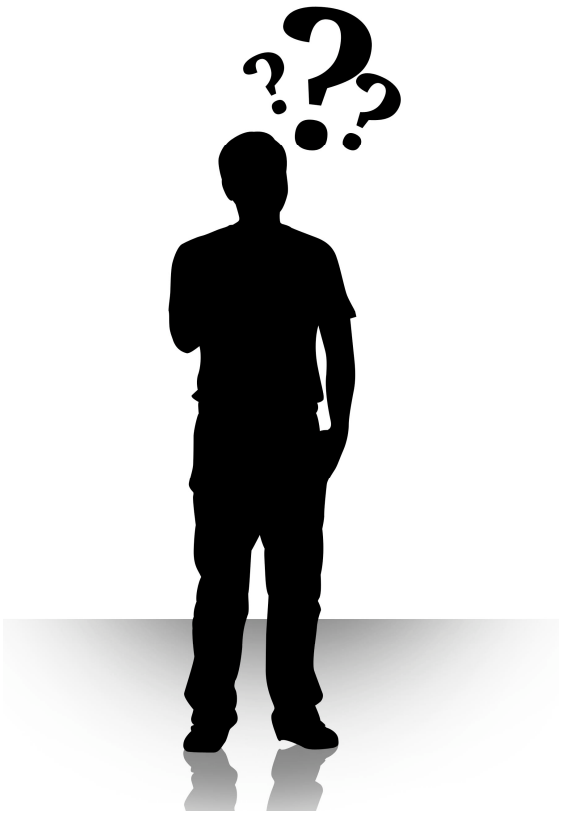
Questions? Want source code? Email me.



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References

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