



GENERATE ROBUST AND COMPREHENSIVE
SELENIUM TEST SUITES

AUTOMATIC SELENIUM TEST GENERATION

SELENIUM BROWSER AUTOMATION

- ▶ Selenium WebDriver can be used for browser automation.
- ▶ Works by identifying web-elements in the page and performing requested action on those elements.
- ▶ Procedural and repetitive
- ▶ UI changes break test cases
- ▶ No inherent test coverage metrics

PAGE OBJECT MODEL (POM)

- ▶ Provides structure to selenium test cases
- ▶ Each page is treated as an object: contains methods and attributes from the web-page directly
- ▶ Changing elements in web-pages results in changing only that object.
- ▶ Maintainable and reusable test-code.

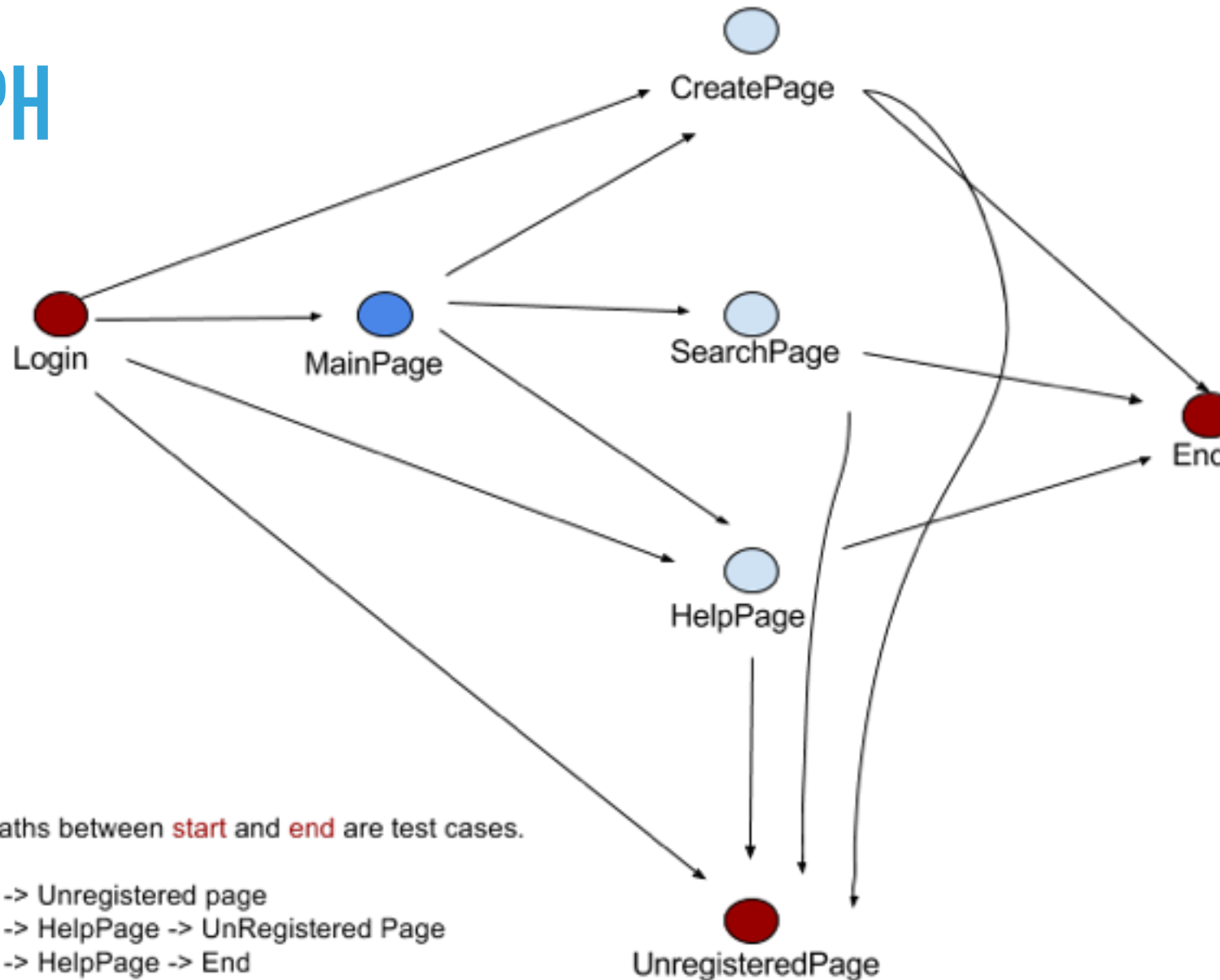
PAGE OBJECT MODEL – ADVANTAGES

- ▶ Clean separation between test code and web-page specific code such as locators.
- ▶ Single repository for services or operations offered by the page.
- ▶ Changes to UI are gracefully handled

MISSING PIECE – AUTO TEST GENERATION

- ▶ Automatic test generation or test identification is missing
- ▶ Repetitive patterns or flow in test cases:
 - ▶ Ex: Login Needs to be tried with valid and invalid parameters. Login Page can take to main page if valid parameters or error handler page with incorrect parameters.
- ▶ Such patterns can be generically modeled to allow for automatic test generation.

TEST GRAPH



All Possible Paths between **start** and **end** are test cases.

Examples:

1. Login -> Unregistered page
2. Login -> HelpPage -> UnRegistered Page
3. Login -> HelpPage -> End
4. Login -> MainPage -> CreatePage -> End.
5. ...

Each state is represented by a class/object and it performs all required activities for that page.

1. Login class is starts with Login page loaded. It is responsible to fill in log-in information from any data store.
2. Each state provides methods which roughly correspond to their actions/buttons: Login page provides Submit()/Login() method, MainPage provides Create(), Search() and Help() methods etc.

Some **intermediate** states can also be used as start states

Examples:

1. After Login Functionality has been verified, we can start rest of test cases from MainPage.

AUTOTESTR – RHOYNAR AUTOMATION SOLUTION

- ▶ Our test solution auto-generates POM based classes for web application
- ▶ All paths between start and end states are the auto-generated test cases. We use a proprietary, modified version of Ford-Fulkerson algorithm to find all paths between start and end in the web-application.
- ▶ For a reasonable size website with thousands of web-elements on the page, such a graph can grow to really big and testing all possible paths is not possible (Its a NP hard problem).
- ▶ Our solution looks at heuristics, neural networks learning and user-input to identify which web-elements to focus on. We also provide a easy-to-use interface to help with the neural network learning of the .
- ▶ [Contact us](#) to learn more about **AutoTestR©** solution and how it can help your business create effective and robust test suites.

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