



# Learning Objectives of CP-SAT v 1.31 (C#)

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*“Knowledge with experience is power; certification is just a by-product”*

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### Version 1.31 - Learning Objectives of CP-SAT - C#:

#### 1. Tool background

##### 1.1. History of Selenium (30 mins)

The participant learns about the history of the tool, its evolution and the need for it.

##### 1.2. Selenium Overview (30 mins)

Learn about the definition and usage of the tool. Get aware of the cross-language, cross-platform, cross-browser capabilities of the tool. Learn about the Selenium tool license policy. Elaborate on the two parts of the Selenium toolkit

- Selenium 3.x
  - Selenium WebDriver
- Selenium Grid
  - Need for Grid
  - Parallel execution of tests

#### 2. Locator Strategies (60 mins)

- Learn the concept of DOM
- Learn about the Structure Dependent locators:
  - XPath
  - CSS
- Learn about the Attributes-based locators:
  - Id
  - Name
  - Link Text
  - Partial Link Text
  - Tag Name

#### 3. Selenium Server

##### 3.2. Selenium 3.x (WebDriver) (420 Mins)

- Setting up your .Net environment (30 mins)
  - Creation of .Net Project
  - Creation of the Source Folders, Packages and Resource Folders
  - Debugging and Running the tests

##### 3.3. Nunit (30 mins)

- Learn about the need of the testing frameworks
  - History of NUnit
  - Running tests using NUnit
- Running WebDriver Tests (30 mins)



- New features of WebDriver 3.x
- Limited methods, more flexibility to create new methods
- Lightweight API
- Wrapper methods for missing commands
- JavaScript execution
- Implicit and Explicit Wait in Selenium 3.x (15 mins)
- Running JavaScript code (30 mins)
- Test Suite creation using Nunit (30 mins)

### 3.4. Various WebDriver implementations (90 mins)

- Firefox Driver (Gecko driver)
- Chrome Driver
- Edge Driver
- Headless Browser Testing
- Learn to manage driver capabilities

### 3.5. Advanced User Interaction (150 mins)

- Keyboard
- Action Builder
- Handling popups
- Handling alerts
- Capturing Screenshots
- Drop Downs
- JQuery (Auto Complete)
- Drag and Drop

## 4. Framework

### 4.2. Testing Frameworks (460 mins)

- Data Driven Framework using WebDriver (210 mins)
  - For Excel (Using .xls and .xlsx)
- Keyword Driven Framework using WebDriver (30 mins)
  - Setting Up Keyword Driven Framework
  - Setting Up Data Engine
  - Test Suite Execution
  - Log Generation
- Page Factory and Page Object Model (120 mins)
- Helper / Utility framework class

## 5. Selenium Grid

### 5.1. Selenium Grid Concept and Practical Setup (60 mins)

- Learn about the built-in grid functionality in Selenium 3.x



- Learn to distribute the tests on several machines and do parallel execution
- Learn to run the tests in parallel on multiple combinations of browser and OS from a central hub
- Learn to setup the Hub server
- Learn to parameterize the tests to run on various nodes
- Learn to override the default parameters on the nodes

### 6. Running Selenium Tests in Continuous Integration environment (120 Mins)

#### 6.1. Concept of Continuous Integration (30 mins)

- Learn about the concept of Automating the Automation
- Learn about the Continuous Integration practice and merging automated Selenium test scripts on CI server

#### 6.2. NUGet/MSBuild task in Jenkins/Hudson (90 mins)

- Learn to prepare Jenkins/Hudson to run NUGet/MSBuild task with Selenium tests
- Learn various triggering events for the test
- Learn to prepare test output reports

### 7. Automation in Agile projects (Reading)

#### 7.1. Agile Manifesto

#### 7.2. Agile in Practice (Video)

#### 7.3. Incremental and Iterative development

#### 7.4. Scrum - Testing in iterations

#### 7.5. Testing challenges in Agile

#### 7.6. Test Automation

### 8. Practical Selenium Automation Testing (Exercises)

- Practice all Selenium concepts throughout the course using various practical case studies.
- Practical Exercises post completion of the program

**This learning Objective is version 1.31 of CP-SAT for the C# Stream.**

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