# TEST AUTOMATION FRAMEWORK

# Objective

To outlay the usage of Ranorex Studio framework to be used in the automation testing activity of the E-Commerce site. This document shall provide details about the framework in the below sections.

# Overview

Ranorex Studio is chosen as the test automation framework for automating the functional test scenarios of the E-Commerce Application. Ranorex Studio is a robust tool that offers a record and replay approach, making it suitable for both beginners and experienced automation engineers. Its versatility, ease of use, and powerful features align with the testing needs of the application.

# Architecture

Ranorex Studio follows a modular and user-friendly architecture that includes the following components:

1. **Ranorex Recorder:**
   * Allows testers to record user actions on the application, generating a test script automatically.
   * Supports various technologies, making it suitable for testing desktop, web, and mobile applications.
2. **Ranorex Studio IDE:**
   * The integrated development environment where testers can enhance and modify recorded scripts.
   * Offers a graphical user interface for creating and managing test suites.
3. **Test Suite:**
   * A collection of test cases organized for execution.
   * Enables the execution of multiple test cases in a structured manner.
4. **Ranorex Agents:**
   * Enables the execution of tests on different environments, devices, or configurations.

More about the Framework and best practices can be found from the Guide : [Test Automation Framework Guide — Ranorex Testing Wiki](https://www.ranorex.com/blog/test-automation-framework-guide/)

# Automation Scripting

Ranorex Studio is not a free tool, and the trail version comes with 7 days validity. It basically has two approaches of scripting. Both are listed below in details. More inputs can be found from: [Ranorex Studio - Getting Started — Ranorex](https://www.ranorex.com/ranorex-studio-getting-started/)

* Record & Replay
  + It has two sub approaches. One is usual run the tool and do the transaction and it shall get recorded. Second approach is that you build up the object repository of an UI Elements and then map those to the actions in the record modules. This approach will eliminate the co-ordinates of the UI Element and be more dynamic and easier to use method for creating automated scripts.
* C# Scripting
  + User can create scripts using C# Programming language to validate the functionalities.

The link below gives a list of technologies supported by Ranorex Studio.

* [Supported Technologies — Ranorex](https://www.ranorex.com/supported-technologies/)

I am unable to prepare script for some random application as my personal laptop does not meet the requirements for basic Ranorex Installation.

But if required can create and show on the High-end environments if given access to it for any random websites or GUI applications.

# Test Data Management with Ranorex Studio:

1. **External Test Data Files:**
   * Ranorex Studio supports reading test data from external files, such as Excel spreadsheets or CSV files. This allows for easy management and modification of test data without modifying the test scripts.
2. Data-Driven Testing:
   * Implement data-driven testing by parameterizing test cases with external data. Ranorex Studio supports data-driven testing, enabling the execution of the same test case with different input values.

Official support related to test data management.

* + [Test Data Management Best Practices and Strategies | Ranorex](https://www.ranorex.com/blog/test-data-management/)
  + [How Data-Driven Testing Can Improve Your Industry’s Software (ranorex.com)](https://www.ranorex.com/data-driven-testing/)

# Pros and Cons

* With my experience this tool has the best Record & Replay feature which allows you to have a test automation scripts to be created and maintained by an Individual who does not need to have a prior knowledge of programming knowledge.
* Not everything can be automated but whenever we are stuck, we can reach out to the Ranorex Support team and their official Forum for Q&A.
* Powerful Spy Tool which can be tweaked depending on the technologies used in your application.
* Python with Selenium support now available: [Ranorex Driver: Alternative Test Automation Framework](https://www.ranorex.com/ranorex-driver/)
* Frequent webinars on the tool usability and best practices from the Ranorex team: [Ranorex Product Training Webinars — Ranorex](https://www.ranorex.com/ranorex-product-training-webinars/)