**CASE STUDY 2: STLC (Software Testing Life Cycle)**

**Title: Testing Automation of an AI-based Resume Screening Platform**

**Background:**

A startup, **HireSmart**, developed an **AI-based resume screening platform** that uses machine learning to rank candidates based on job descriptions. With multiple releases planned and pressure from enterprise clients, the QA team had to fully implement **test automation and quality gates** under a tight timeline.

**STLC Phases Applied:**

**🔹 Requirement Analysis:**

* Focused testing areas:
  + Accuracy of ML-based recommendations.
  + UI consistency across browsers.
  + Response time under concurrent uploads.

**🔹 Test Planning:**

* Strategy included:
  + Selenium for web UI.
  + PyTest for API testing.
  + JMeter for performance testing.
  + Custom scripts for ML model validation.

**🔹 Test Case Design:**

* Created 700+ test cases:
  + Boundary tests (e.g., 1000+ resumes uploaded simultaneously).
  + Negative tests (e.g., corrupted files).
  + Validation of AI scores against labeled datasets.

**🔹 Test Environment Setup:**

* Deployed test environments on AWS using Terraform.
* Used real-world anonymized resumes for functional testing.
* Trained ML models updated weekly — testing pipelines adapted to each iteration.

**🔹 Test Execution:**

* Identified:
  + Biased scoring from ML model for certain keywords.
  + Upload failures with PDFs above 5MB.
  + UI crash in Safari browsers.

**🔹 Test Closure:**

* Logged 280+ bugs over 5 releases.
* Test summary included coverage, risk matrix, model drift reports.
* Sign-off included client demo, audit trail of test logs.

**🔸 Key Challenges:**

* ML testing had no fixed expected output; required statistical comparison.
* Auto-scaling system required performance validation under dynamic loads.
* Inter-team dependency with Data Science and DevOps teams.