**JDoodle Test Strategy Document**

1. **Testing Scope :**

*The testing will be performed on website which provides cloud based IDE and programming platform which covers following functionalities.*

* 1. **Online Complier and IDE**
  2. **Online Assessment and Course Platform**
  3. **IDE Plugin Solution**

1. **Testing Approach :**

*The testing activities will follow Agile Testing methodology with below steps:*

* 1. **Test Planning (Sprint) :**
     1. Test purposes and objectives (Based on user stories)
     2. Testing scope and timeline: What needs to be tested and for how long
     3. Methods: Define how tests are run, including types of testing, testing tools, and testing environments
  2. **High level of automation**
     1. High degree of automation for continuous feedback and iteration whenever the code is changed.
     2. Automation will leverage required regression testing for release
  3. **Risk Management**
     1. Identifying the hurdles and dependency will help team to prioritize the tasks and meet the deadlines wisely.

1. **Test Environment and Infrastructure :**

*The testing will be conducted on the web application across the following hardware and software configurations:*

* 1. **Operating systems: Windows, macOS, Linux**
  2. **Browsers: Chrome, Firefox, Safari and others(Business recommended )**

*Should setup automated process to optimise the timelines by identifying the issues in early stage.*

1. **Every development build should go through few automation checks and automated tests.**
2. **Testing should be done on production like environment to avoid surprises in Production after release.**
3. **Testing Types :**
   1. **Functional and Integration Testing :**
      1. Validating Individual components are working as expected when new feature is delivered , covers APIs and UI entities.
      2. Includes validating the inactions between each components covers E2E business functions.
   2. **Regression Testing :**
      1. Use Automation testing effectively to minimize the work force and timeline without compromising the quality.
      2. Execute test scenarios manually which are not automated.
   3. **Usability Testing :** 
      1. Identify the better user preferences for smoother navigations through the application
      2. Validation adherents to accessibility standards and regulations
   4. **Performance Testing**
      1. Identify and mitigate the potential issues during high workloads
      2. Validate the stability and reliability of the application before moving to production.
   5. **Security Testing.**
      1. Identifying and addressing security vulnerabilities before production.
      2. Mitigating possibly penetration form cyber-attacks.
4. **Test Automation Tools,** *I feel below tools are appropriate:*
   1. **Test management tools: Jira** 
      1. To track requirements.
      2. To track test artifacts.
   2. **Test automation tools: Playwright**
      1. Which supports API, Mobile and Web app testing.
   3. **Programming language : TypeScript**
      1. Better to select a language which is used in coding, it helps in Unit testing and other dependencies .
   4. **Code quality and static analysis tools : SonarQube and Copilot**
      1. To follow standard code and clean code.
   5. **CI/CD tools: Jenkins**
      1. Automated testing enables continuous delivery, which ensures software quality and security and increases the profitability.
   6. **Performance testing tools**
      1. Tools like JMeter helps the performance of the application
   7. **Security testing tools**
      1. Tools like sync will help identifying and fixing code vulnerabilities
      2. NetSparker – Helps to identify exploitable vulnerabilities.
5. **Risks and Mitigation Strategies:**

*We may face below risks and possible solution for the risky.*

* 1. **Project Risk :** uncertain event or activity that can impact the project’s progress. Plan buffer time and backup plan deviation.
  2. **Organizational Risk :**  shortage of human resource or technical knowledge gap in Testing team. Optimized Project sizing and distributed reasonability’s and well documented details.
  3. **Business/Product Risk :** External disturbance and possibility that the system or software might fail to satisfy or fulfil the expectation of the customer.

**Below steps will help to mitigate the risks**

* + 1. Set Priority for testing and utilize the testing tools effectively
    2. Retrospect about process and improve.
    3. Get customer feedback in early stage

1. **Test Deliverables and Exit Criteria:**

*The testing team will prepare and provide the following reports for the banking web application:*

* 1. **Test Cases Execution Report:**Provides information on the execution of test cases, including:
     1. Pass/fail status
     2. Test Case IDs
     3. Associated defects or issues encountered during testing
  2. **Defect Report:**Contains details about the defects or issues discovered during testing, including:
     1. Description and Steps to reproduce
     2. Severity, Priority.
     3. Current status (open, resolved, closed)
  3. **Test Summary Report:**Offers an overview of the testing activities conducted, including:
     1. Pass/fail rates
     2. Test coverage achieved
     3. Overall assessment of the application's quality
  4. **Test Progress Report**: Tracks the progress of testing activities throughout the project, including:
     1. Planned versus actual test execution
     2. Milestones achieved
     3. Risks or issues encountered
  5. **Test Coverage Report**: Provides insights into the extent of testing coverage achieved, including:
     1. Areas of the application tested
     2. Types of testing performed
     3. Gaps or areas requiring additional testing