During in-sprint QA testing, various types of testing are conducted to ensure the quality and functionality of the product increment being developed. Test execution involves both automated and manual testing approaches, including smoke testing, system testing, and regression testing.

1. **Smoke Testing:**
   * **Automated:** A set of basic test cases is automated to quickly verify that the most critical functionalities of the application are working as expected. These automated smoke tests are executed at the beginning of each sprint to ensure the stability of the build.
   * **Manual:** Additionally, manual smoke testing may be performed to validate the overall behavior and usability of the application, focusing on key user journeys and primary functionalities.
2. **System Testing:**
   * **Automated:** Automated test scripts covering end-to-end system scenarios are executed to validate the integrated functionalities of the application. These automated system tests ensure that all components work seamlessly together and meet the acceptance criteria defined for each user story.
   * **Manual:** Manual system testing is conducted to perform exploratory testing, edge case validation, and usability testing. Testers simulate real-world usage scenarios to identify any discrepancies or usability issues that may have been overlooked.
3. **Regression Testing:**
   * **Automated:** Regression test suites comprising automated test cases are executed to ensure that new changes or additions to the codebase do not introduce any unintended side effects or regressions. These automated regression tests are run continuously throughout the sprint to provide rapid feedback on the stability of the application.
   * **Manual:** Manual regression testing is also performed to supplement automated tests, focusing on critical areas that may be more effectively validated through manual exploration. Testers verify that existing functionalities remain intact after new changes are implemented.

By combining automated and manual testing approaches for smoke testing, system testing, and regression testing, the QA team ensures comprehensive validation of the product increment within each sprint. This dual approach enables rapid feedback, early defect detection, and continuous improvement, contributing to the overall success of the Agile development process.