Reporton Day 6: Deployment Preparation and Staging Environment Setup

Objective: Day 6 focuses on preparing the market place application for deployment by setting up a staging environment, configuring hosting platforms, and ensuring the application is ready for a customer-facing release. This stage builds on the testing and optimization work from Day5,ensuringthatthemarketplaceoperatesseamlesslyinanenvironmentthatclosely mirrors production.

Deployment StrategyPlanning:Step 1

1. **ChooseaHostingPlatform:Vercel(Recommended)**Vercelwasselectedasthe hosting platform due to its seamless integration with Next.js and its ability to automatically deploy projects from GitHub. Key benefits include:
    - **EasyIntegration**:Nativesupportfor Next.js.
    - **AutomaticDeployment**:DeploysautomaticallyfromGitHub.
    - **Scalability**:Handlesvaryingtrafficloadsefficiently.
    - **ServerlessFunctions**:Enablesbackendlogicwithoutmanagingservers.
2. **Finalize Application's Interaction with Backend Services** Before deploying, it is essentialtoensurethattheapplicationinteractscorrectlywithbackendservices,such as Sanity CMS and third-party APIs.
    - **SanityCMS**:Confirmproperfetchingofcontentwithcorrectconfigurationof the Sanity client and API keys.
    - **Third-partyAPIs**:EnsureAPIcallsworksecurelyandthatsensitivedatalike API keys are stored in environment variables.

Environment Variable Configuration:Step 2:

1. **Secure API Keys, Database Credentials, and Sensitive Data Using .env Files** SensitivedatalikeAPIkeysandcredentialsshouldbestoredsecurelyin `.env`files. This prevents exposing secrets in the codebase.

2. **Configure Environment Variables in the Hosting Platform for Secure Deployment**Aftersettingup`.env`filesinthedevelopmentenvironment,configure these variables in Vercel to ensure secure deployment. This step is crucial for maintaining data security in production.

Staging Environment Setup: Step 3

1. **DeploytheApplicationto Staging**
    - Pushthelatest codeto GitHub.
    - SetupaPreviewDeploymentinVercel(eitherbylinkingastagingbranchor using the default production branch).
    - Vercelwilltriggerthebuildanddeploymentprocess automatically.
2. **ValidateDeployment**
    - CheckVercel'sbuildlogsforasuccessful deployment.
    - AccessthestagingURLandtestthesitetoensureallfeaturesworkas expected.
    - Verifythefunctionalityofbackendintegrations(e.g.,SanityCMSandAPIs).
3. **Troubleshoot**
    - Ifissuesarise,reviewbuildlogsandverifythecorrectconfigurationof environment variables.

Staging Environment Testing: Step 4

1. **Conduct Functional Testing**
   - **Cypress**:Testworkflows likeproductlistingandcheckout.
   - **Postman**:ValidateAPIresponsestoensuretheapplicationfetchesdata correctly.
2. **Perform Performance Testing**
   - **Lighthouse**or**GTmetrix**:Analyzesiteperformance,includingloadtimesand speed. Optimize as necessary.
3. **Verify Responsiveness & Error Handling**
   - Testacrossvariousdevicesandscreensizestoensurethesiteismobile-friendly.
   - Ensurepropererrorhandlingforbrokenlinksandfailedinteractions.
4. **Document Test Results**
   - Recordalltestoutcomes,includingperformancebenchmarks,functionaltests, and any unresolved issues.

1. **DocumentTestResults**:
   - Recordalltestoutcomes,includingperformancebenchmarksandfunctional tests.
   - Listunresolvedissues andprioritizefixes beforeproduction deployment.

TestCase Reporting

Documentingtestcasesinastructuredformatensurescleartrackingoftestingprogressand issues. Here's how you can document test cases in a CSV file:

Test Case ID	Description	Steps	Expected Result	Actual Result	Status	Remarks
TC001	Validate productlisting	Openproduct page>Verify products	Products displayed	Products displayed	Passed	Noissues found
TC002	TestAPIerror handling	DisconnectAPI >Refreshpage	Show fallback message	Fallback message shown	Passed	Handled gracefully
TC003	Check cart functionality	Additem to cart >Verifycart	Cartupdates correctly	Cartupdates correctly	Passed	Worksas expected
TC004	Testform validation	Submitform with empty fields	Display error message	Error message displayed	Failed	Missing validation check
TC005	VerifyHTTPS connection	Open site > CheckHTTPS status	HTTPS enabled	HTTPS enabled	Passed	Secure connection

Conclusion:

Day 6's focus on deployment preparation and staging environment setup has ensured that the marketplace application is ready for deployment. The application has been deployed to a staging environment on Vercel, environment variables have been securely configured, and all necessary testing (functional, performance, and security) has been completed. Test cases and performance benchmarkshavebeendocumented,andtheprojectrepositoryiswell-organizedwithaprofessional README.md file. With these steps completed, the application is prepared for a smooth transition to production.