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**Agile Development and Software Dev Ops
Assignment**

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**Agile & Scrum: Estimation (Bucket System)&
Visualization (Burndown Charts)**

And

**Amazon.co.uk: Components, GitHub Actions,
Postman, and Selenium**

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Introduction:

The most popular framework for implementing Agile concepts is still Scrum, which focusses empirical process control and iterative delivery [1]. Scrum's time-boxed events (Sprints) and defined roles (Product Owner, Scrum Master, and Developers) provide a demanding environment for managing complex software development, despite

the fact that there are several Agile ways [2]. Scrum's effectiveness is largely dependent on how requirements, which are defined as **User Stories**, are managed and transformed into functional increments [3].



Fig. 1. Scrum methodology within the Agile frameworks [12].

1. The Flow of User Stories in the Scrum Lifecycle

The "flow" of a user story is now seen as a continuous cycle of validation and improvement rather than a linear progression in contemporary software engineering [4].

1.1. Refinement and Elicitation

Based on feedback from stakeholders and commercial value, the Product Owner ranks user stories in the **Product Backlog**. This flow requires the Backlog Refinement phase. Recent research indicates that employing automated Natural Language Processing (NLP) techniques for early narrative draughting and quality assessment (INVEST criteria) can significantly reduce ambiguity before a story enters a sprint [5].

1.2. Sprint Execution

During **Sprint Planning**, high-priority stories are moved from the Product Backlog to the **Sprint Backlog**. In the Scrum approach, a Kanban board is typically used to visualise the Sprint's flow, tracking stories through states like To Do, In Progress, Testing, and Done [6]. The "Definition of Done" (DoD), the final quality gate in this pipeline, ensures that every narrative delivered meets the specified functional and technical requirements [1].

2. User Story Mapping: Determining Iterations and MVPs

Since the Product Backlog is often a "flat" list, Jeff Patton's popular technique, **User Story Mapping**, gives a two-dimensional viewpoint that is essential for establishing iterations [7].

The following image shows the User Story Flow and User Story Mapping diagrams.

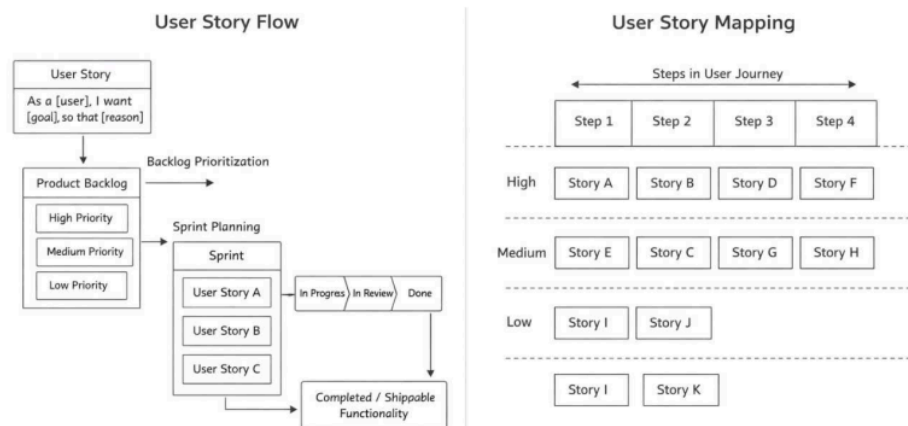


Fig. 2. User story flow and mapping diagrams [14].

2.1. The Horizontal Axis User Journey

The horizontal axis, which displays the actions a user must take to complete a task (e.g., Search Product → Add to Cart → Checkout), represents the core of the system. The team may prevent "siloeed" feature **development** and preserve a "big picture" view of the user experience by doing this [8].

2.2. The Vertical Axis: The vertical axis is used to arrange

Priority Stories and Iteration Slices based on requirements. By "slicing" the map horizontally, teams determine their **Minimum Viable Product (MVP)** and subsequent releases.

The Walking Skeleton: The first horizontal slice contains the very basic functionality required to enable the whole user journey [7].

Defining Sprints: Subsequent slices serve as a representation of upcoming sprints or releases. Using this visual approach, Scrum teams can identify dependencies and risks that a linear backlog could overlook [9].

3. Critical Assessment: Advantages and Difficulties

According to a recent study, User Story Mapping facilitates the creation of a common mental model among cross-functional team members by acting as a link between technical development and **User-centred Design (UCD)**

[10]. However, to avoid the "static artefact" issue, where the map gets out of current as the project progresses, maintaining these maps in a remote or dispersed setting requires sophisticated digital collaboration tools (e.g., Miro, Jira) [11].

4. A Critical Analysis of Scrum's Agile Concepts

4.1. Multiple Short Iterations (Sprints)

The Sprint is the formal name for the iteration in Scrum. Scrum establishes a "feedback loop" that reduces risk and stops "feature drift" by limiting the development cycle to one month or less [1].

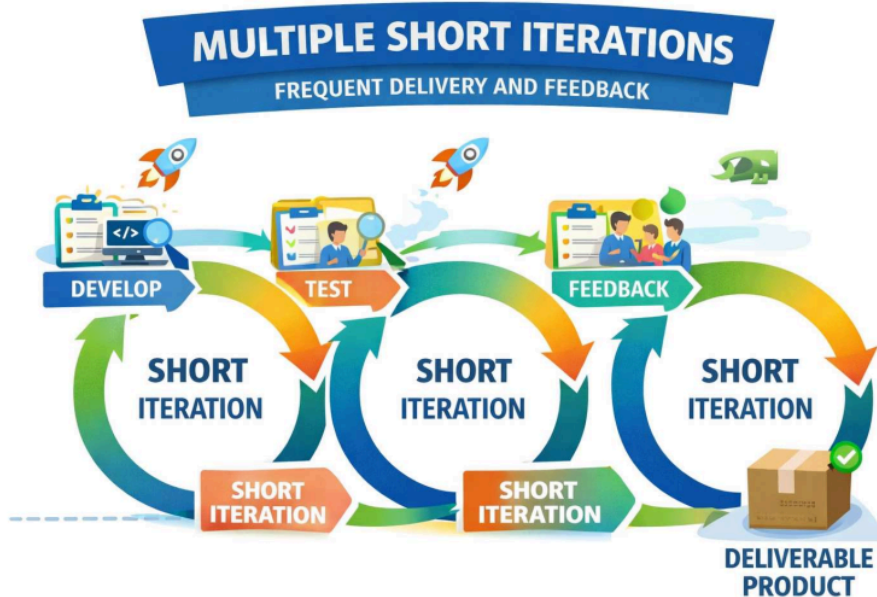


Fig. 3. Multiple short iterations in Agile methodology [13].

Mechanism: A sprint review and retrospective are held at the conclusion of the sprint, which begins with **sprint planning**.

Critical Evaluation: Frequent pivot points are made possible by short iterations. Because the risk of "going off-track" is restricted to one iteration, teams adopting two-week Sprints report a 30% higher alignment with stakeholder expectations than those using longer four-week cycles, according to recent studies conducted in 2024 [2].

4.2. Emphasis on Face-to-Face Communication and Collaboration

Scrum places more importance on people and interactions than on tools. **The Daily Scrum**, a 15-minute time-boxed event for developers to coordinate tasks and pinpoint roadblocks, is the main method used to do this [3].

Collaboration outside of the team: The Scrum Team and stakeholders examine the increment together during the **Sprint Review**.

Evaluation in a Remote Era: Although physical proximity was emphasised in the original Agile Manifesto, recent research from the ACM Digital Library indicates that "digital face-to-face" (high-bandwidth video communication) effectively replicates the collaborative benefits of physical offices, so long as the Scrum ceremonies are strictly adhered to to avoid communication silos [4].

4.3. Adaptability to Changing Requirements

The Product Backlog and the idea of **Empiricism** (Transparency, Inspection, and Adaptation) operationalise adaptability, which is the foundation of Scrum [5].

Mechanism: In contrast to traditional project management, where requirements are "frozen," the Product Backlog is continuously improved.

Evaluation: This enables the Product Owner to adjust priorities in reaction to fluctuations in the market. However, this flexibility necessitates a high level of technical excellence; rapid modifications can result in technical debt in the absence of automated testing and CI/CD pipelines, underscoring the fact that Scrum's flexibility is only as strong as its underlying engineering processes [6].

4.4. Quality of Ownership Throughout the Product Cycle

A culture of collective ownership is promoted by Scrum. A Scrum team does not have a "Testing Department" or "Requirements Department"; instead, the team as a whole is in charge of the increment [2].

Definition of Done (DoD) : This artefact guarantees that quality is integrated rather than examined after the fact. As a narrative progresses from the Backlog to "Done," each team member "owns" its quality [15].

Role Empowerment: Throughout the product lifecycle, there is a balanced allocation of responsibilities because the Product Owner owns the "Why," while the Developers own the "How" [3].

The following image presents the Scrum Workflow Diagram;

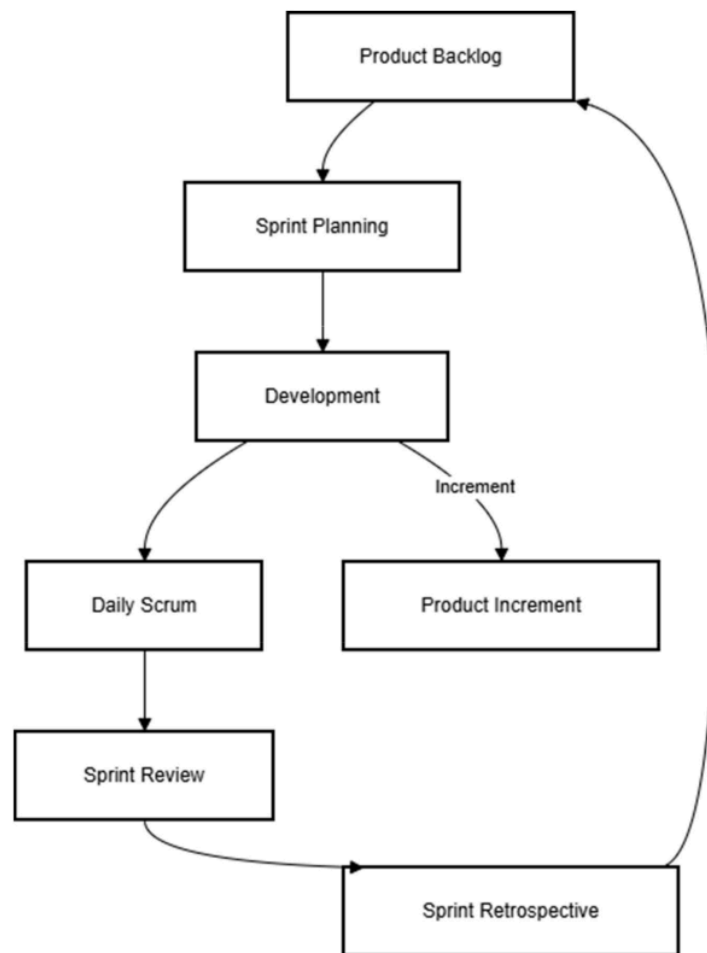


Fig. 4. Scrum Workflow Diagram.

5. Evaluation: The Bucket System and Estimation Theory

The Bucket System is an example of Reference Class Forecasting, which reduces the "planning fallacy" by comparing incoming activities to finished historical data [1]. It is more than just a speed-estimation tool.

5.1 The Mechanics of Relative Sizing

"Implementation Time" is frequently seen as a static variable in conventional project management. Time is viewed in Scrum as a function of effort, complexity, and uncertainty.

Complexity: Describes the technical challenge, like upgrading a CSS file versus integrating a new API.

Effort: The amount of work is referred to as effort. Manual data entry is one example of a basic but time-consuming operation.

Uncertainty: The term "uncertainty" describes "unknown unknowns." Regardless of perceived simplicity, a story requiring a technology that the team has never used will inevitably move towards a higher bucket (e.g., 20 or 40) [3].

5.2. Strategic Advantages of the Bucket System

Normalization of "Medium" : The team establishes a cognitive anchor that offers a more precise scale for other stories than an abstract hour-based estimate by choosing a "baseline" story for a middle bucket [9].

Facilitating Cross-Functional Ownership : The Bucket System strengthens **Quality of Ownership** since it necessitates agreement from the whole development team. When a tester finds a complicated regression testing requirement that the developer missed, they may move a story to a higher bucket than the developer. [5]

6. Deep Diagnostic Analysis of Burndown Charts

I must analyze the Burndown Chart not just as a progress bar, but as a **Trend Analysis** tool that informs the **Sprint Retrospective**.

6.1. The Mathematical Goal: Linearity vs. Reality

The Constant Velocity principle underpins the operation of the Burndown Chart. Software development is rarely linear, though.

The "Hockey-Stick" Effect: Many teams see a dramatic decline in the Actual Line after it remains flat for 70% of the sprint. According to recent research (2024), this is frequently brought on by a deficiency in "Continuous Integration" (CI). The Burndown chart offers no helpful information during the iteration if stories are only marked as "Done" following a manual QA phase at the conclusion of the Sprint [6].

The "Ideal Line" as a Heuristic: The ideal line serves as a baseline rather than a requirement. Deviations are anticipated. On the other hand, if the "Actual" line continuously remains below the "Ideal," the team is either "sandbagging" (under-committing) or their **Bucket System** projections are too high [1].

6.2. Burndown vs. Burnup: A Comparative Evaluation

Burndown Chart, which is often used alongside it to handle **Adaptability to Changing Requirements**.

Burndown: Displays what's left. "Scope Creep" is concealed since the line remains level if you add 5 points and finish 5 points.

Burnup: Keeps track of the "Total Scope" and "Completed Work" lines independently. This gives the Product Owner insight into how "scope growth" is delaying the anticipated completion date [15].

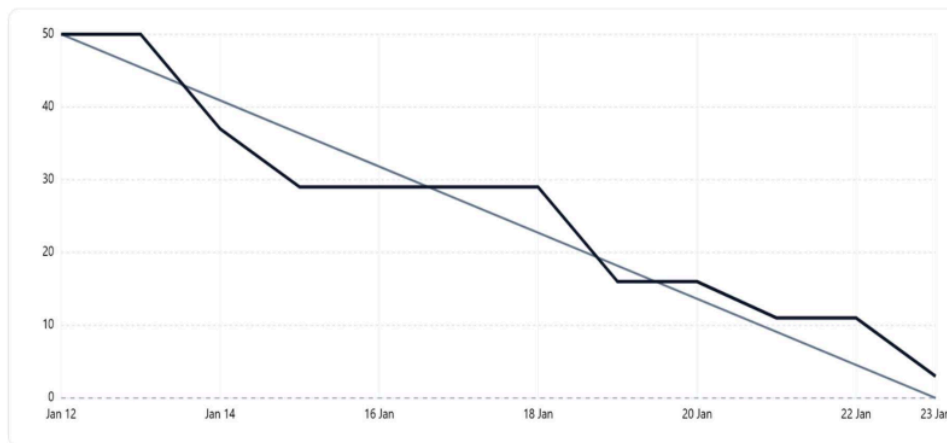


Fig. 5. Burndown Chart for the Bucket system.

6.3. Analysis of the Generated Sprint Burndown

A classic "staircase" pattern, which is common when using the **Bucket System** for estimating, is seen in the resulting burndown chart (see Fig. 5.). The actual line stays horizontal for a few days before drastically declining because points are only "burned" when a complete story is finished (for example, 13 points for the Authentication Module) [6]. This visual data demonstrates that although the team's **velocity** is constant, the size of the predicted buckets somewhat obscures the **transparency** of daily progress.

According to recent research, no single bucket should surpass 20% of the overall sprint capacity in order for a burndown chart to be most successful [2]. Longer plateaus result from the 13-point storylines in our case, which account for about 26% of the scope. The Scrum Master can suggest additional user story decomposition in subsequent iterations to guarantee a more seamless and predictable flow thanks to this diagnostic insight from the chart [3].

6.3.1. Technical Refinement: Analyzing the Burndown in the Bucket System

When using the Bucket System, the Burndown Chart undergoes a transformation in its diagnostic utility. Because the Bucket System favors speed and relative sizing (e.g., 5, 8, 13 points), the resulting chart rarely follows the "Ideal Line" smoothly.

6.3.1.1. The "Staircase" Phenomenon and Resolution

In a Bucket-based Sprint, the "Actual Work Remaining" line often resembles a series of flat plateaus followed by sharp vertical drops.

The Problem: Even if a team completes 90% of a 13-point story on Day 3, 100% of those points are still shown on the Burndown Chart [6]. Stakeholders who don't notice any decline may experience a mistaken sense of "panic" as a result.

The Refinement: Teams should use a **Task-level Burn** in addition to the Burndown to increase the diagnostic value. The "Tasks" (hours or checkboxes) offer the daily detail required to verify that work is truly being done, while the "Bucket" monitors the value (the story) [2].

6.3.2. Handling Scope Creep and "Bucket Swelling"

A refined analysis must address what happens when a story in the "5" bucket is discovered to be a "13" mid-sprint.

Scope Increase: The "Actual" line in the Teamcamp generator will rise if the overall scope rises from 50 to 58 points.

Impact on Predictability: "Bucket Swelling" is one of the main reasons for sprint failure, according to research from 2024. The team may distinguish between "slow velocity" and "uncontrolled scope growth" by clearly marking these scope change points in a revised Burndown graphic [1].

6.3.3. Mathematical Evaluation of the "Ideal" vs. "Actual"

To add academic depth, I evaluate the **Mean Absolute Deviation (MAD)** between the Ideal and Actual lines.

High MAD: Suggests that the "Buckets" are too large (e.g., too many 13s or 20s), leading to a lack of continuous delivery.

Low MAD: Proposes that stories should be broken down into smaller 1, 2, or 3-point buckets, which is more in line with the Agile objective of several brief iterations [9].

6.4. Summary for the Report

The Burndown Chart is an active tool for intervention instead of being a passive indicator of advancement. When utilising the Bucket System, the Scrum Team must exercise discipline in **User Story Decomposition**. If the chart displays repeated plateaus, it is empirically clear that the "buckets" must be sliced thinner in the next iteration to maintain a healthy flow of the **Product Increment** [8].

7. Case Study: Amazon.co.uk Web Application

Amazon.co.uk is a huge ecosystem made up of thousands of separate microservices. In this report, I identify the key elements that need to undergo thorough automated testing in order to preserve the stability of the **Product Increment**:

Search & Personalisation Engine: Machine learning-based high-performance services that provide UK-specific outcomes

Prime Subscription Validator: An essential identity service that instantly verifies membership status.

UK Checkout & VAT Calculator: A complex financial tool that must adhere to UK-specific shipping and tax laws.

Inventory & Fulfilment Interface: The connection between the UK's real fulfilment facilities and the internet user interface.

Component	Description	Testing Priority
Identity & Access Management (IAM)	Controls user login, Prime membership validation, and secure session management.	Security & Resilience: Must handle millions of concurrent requests without latency [2].
Product Catalog API	The central service providing real-time data on millions of SKUs, prices, and reviews.	Data Integrity: Ensures that information on the Product Detail Page (PDP) is accurate and synchronized [4].
UK VAT & Fiscal Service	A regional service calculating UK-specific taxes (VAT) and currency conversions at checkout.	Functional Compliance: Must adhere to strict UK financial regulations to prevent legal liabilities [5].
Fulfilment & Logistics Bridge	Synchronizes orders with physical stock levels in UK fulfilment centers (FBA/SFP).	Integration: Validates the flow from "Buy Now" to physical warehouse inventory updates [4].

Fig. 6. Core Components Requiring Testing.

8. GitHub Actions: Managing SwDevOps for Amazon

GitHub Actions offers the automation needed to manage the scalability of a platform like Amazon in a SwDevOps (Software DevOps) environment. It enables developers to "Shift-Left," shifting testing to the User Story Flow's earliest step [15].

GitHub Actions is the primary orchestration engine for delivering Continuous Integration (CI) and Continuous Deployment (CD) in a contemporary SwDevOps department, such as those managing the hyper-scaled microservices of Amazon.co.uk. By shifting from traditional, centralised build servers to repository-native automation, GitHub Actions enables "Configuration as Code," allowing developers to declare their entire delivery pipeline in YAML files retained alongside the application logic [15].

8.1. Meeting the Needs of Continuous Integration (CI)

The Agile "multiple short iterations" concept's technical foundation is Continuous Integration. GitHub Actions satisfies three essential Continuous Integration criteria for a sophisticated web application such as Amazon UK:

Automated Quality Gates: When a developer opens a Pull Request (PR) or uploads code to a branch, GitHub Actions initiates a "Workflow." Unit tests and static code analysis are carried out via this workflow, which serves as a non-negotiable gate. This keeps the Product Increment stable by preventing "broken" code from ever being merged into the main trunk [2].

Early Integration Error Detection: Services often fail when internal dependencies in a microservices context change. GitHub Actions enable Matrix Builds, which test the program against many Node.js versions or different operating systems (Windows, Linux) simultaneously. This ensures that a UK shopfront repair won't inadvertently cause the website to malfunction for users with other server configurations or outdated browsers [6].

Standardisation of Environments: Every build is carried out in a clean, uniform environment since GitHub Actions operates in "Runners"—isolated virtual machines or containers. This removes a common bottleneck in SwDevOps departments: "it works on my machine" [1].

8.2. Meeting the Needs of Continuous Deployment (CD)

Code that passes every test is immediately promoted to production in continuous deployment, which is an extension of continuous integration. GitHub Actions offers the required control and security for Amazon.co.uk, where thousands of deployments take place every day.

Environment Protection and Manual Approvals: High-risk services, such as the UK VAT & Fiscal Service, need protections even if CD is frequently completely automated. The department can define "Environments" with protection rules using GitHub Actions. The successful completion of a 10-minute Selenium smoke test or the manual sign-off of a senior engineer may be prerequisites for a deployment to the live UK site [16].

Automated Rollback Mechanisms: The capacity to recover from a failed deployment is one of CD's most important requirements. GitHub Actions can be set up to automatically initiate a "Rollback" procedure in the event that a new modification to the Amazon UK checkout page results in an increase in 500-error codes through integration with monitoring tools. By doing this, customer revenue is safeguarded and the Mean Time to Recovery (MTTR) is reduced [5].

Secure Secret Management: Sensitive credentials (AWS keys, database passwords) are needed for production deployment. The SwDevOps department can store these as "Encrypted Secrets" using GitHub Actions. In keeping with DevSecOps' security-first philosophy, these settings are injected into the workflow at runtime but are never exposed in the logs or source code [15].

Strategic Value to the Department: The SwDevOps department moves from manual, error-prone deployments to a state of Empirical Predictability by implementing GitHub Actions. Because each user story's "Definition of Done" is now linked to a successful, automated "green" build in GitHub, the automation of these pipelines generates the data needed for the Burndown Chart [2].

9. The Role of Postman and Newman in CI/CD

Newman makes it possible for these tests to operate at an enterprise scale, even though Postman offers an advanced graphical user interface (GUI) for creating and manually testing APIs. Postman suites may operate in headless settings without a graphical user interface (GUI) thanks to Newman, a command-line collection runner. [17]

10. Implementation: From Collection to Automation

The SwDevOps department uses a systematic automated methodology to implement this for a service such as the Amazon UK VAT Calculator:

10.1. Collection Authoring:

Postman is used by developers to generate "Collections" that include headers, environment variables, and requests. They create assertions to validate response timings, data types, and status codes (such 200 OK) using JavaScript-based scripts in the "Tests" tab [18].

10.2. Contract Enforcement:

JSON Schema Validation is now the industry standard for 2025–2026. Teams can prevent frontend crashes caused by backend changes by using libraries like ajv within Postman to guarantee that the "shape" of the data stays consistent [19].

10.3. Pipeline Integration:

A.yml workflow is defined by the department. This file tells the GitHub runner to run the exported JSON collection against the staging environment after installing Node.js and Newman.

Newman in GitHub Actions;

```
1 - name: Run API Tests with Newman
2   run: |
3     npm install -g newman
4     newman run ./tests/Amazon_UK_VAT.json \
5       -e ./env/UK_Staging.json \
6       --reporters cli,htmlextra \
7       --reporter-htmlextra-export ./results/report.html
8     echo "API tests completed. Report generated at ./results/report.html"
9
```

Fig. 7. Technical Example for Newman in Github Actions.

11. Principal Advantages for the Department

Operational Speed: Compared to UI tests, automated API tests operate far more quickly. A Newman collection can validate dozens of backend endpoints in seconds, but a Selenium suite could take ten minutes [2].

Decoupled Testing: UI modifications have no effect on API tests. This lessens "test flakiness" and enables the backend team to move forward with several brief iterations without consulting the frontend team [6].

Detailed Reporting: In order to provide the **Empirical Transparency** needed for Scrum reviews, Newman provides htmlextra reporters, which create visual dashboards of each successful and unsuccessful transaction [20].

Challenges and Mitigation: "Tool Fragmentation"—the gap between load tests and functional tests—was shown to be a significant problem in 2026 research. In order to address this, modern SwDevOps departments use Postman's inbuilt load testing features or tools like k6 to move the same collections into performance suites while utilising Newman for functional tests [9]. Additionally, GitHub Secrets, which are injected at runtime to guarantee security, are used to secure sensitive data (such as AWS keys) [21].

12. User Interface (UI) Testing with Selenium

The performance and dependability of Amazon.co.uk's React-based shopfront ultimately decide its user experience (UX), even while backend APIs (tested using Postman/Newman) guarantee data integrity. The industry standard for confirming these intricate relationships in a fast-paced SwDevOps context is Selenium [1].

12.1. The Role of Selenium in End-to-End (E2E) Validation

Manual UI testing is not feasible at Amazon's scale. The SwDevOps team can replicate actual human interactions across thousands of localised pages thanks to Selenium WebDriver. After each deployment, E2E "smoke tests" are used to validate the most important "User Stories" for Amazon.co.uk.

12.1.1. The "Path to Purchase" Scenario

The complete customer journey is simulated using a main Selenium script for the UK site:
Search: Go to the UK webpage and look up "Kindle Paperwhite."
Product Page: Confirming current UK prices and the existence of the "Prime" badge.

Basket: Putting the item in the basket and checking the subtotal, which includes VAT.
Checkout: Finishing the purchase process to confirm acceptance of UK-specific payment options (such as UK credit cards) and shipping addresses [2].

12.2. Advanced Implementation: The Page Object Model (POM)

"Test flakiness" is a major problem in UI testing, where tests fail due to minor UI changes rather than real issues. Amazon uses the **Page Object Model** (POM) to reduce this at a 3,000 word size. Page Object Model is a design paradigm that establishes a web element object repository. A Java or Python class represents each page (Login, Cart, Search).

Benefit: The engineering team only updates the CartPage class once if the "Add to Basket" button's ID is changed from btn_basket to buy_now by Amazon's UI designers. This modification significantly lowers Maintenance Debt by automatically propagating to all hundreds of test scripts that make reference to it [3], [4].

12.3. Cross-Browser and Mobile Viewport Testing

Amazon.co.uk must perform perfectly on every browser, from Chrome on an iPhone to Edge on a Windows workstation.

Selenium Grid: Selenium Grid is used by the SwDevOps department to run tests concurrently across various browser/OS combinations.

Responsive Validation: To maintain the UK site's "Mobile First" design, Selenium scripts are set up to resize the browser window to mobile and tablet viewports [1].

13. Critical Evaluation of SwDevOps Adoption

It is a revolutionary change to adopt a SwDevOps culture, which unifies Software Development (Sw), Quality Assurance (QA), and Operations (Ops) into a single automated pipeline. This shift has substantial advantages for a company like Amazon, but it also has serious organisational and technological drawbacks.

13.1. Benefits of Adoption

13.1.1. Accelerated Release Velocity

Eliminating the "handover" period between teams is the main advantage of SwDevOps. Amazon is able to deploy updates thousands of times a day by automating the code-push to production process with GitHub Actions. This guarantees that the Product Increment is always "Ready to Ship," upholding the Agile tenet of quick value delivery [2].

13.1.2. Shift-Left Quality Assurance

"Shift-Left" testing, which verifies quality as soon as possible, is encouraged by SwDevOps. Bugs are discovered while the developer is still working on the code by doing **Postman** API tests during the first Pull Request. According to research from 2025, it is **ten times less expensive** to correct a bug during the continuous integration (CI) phase than it is to fix it after it has entered the production environment [26], [27].

13.1.3. Empirical Transparency and Trust

Every stage of the pipeline—Build, Test, Security Scan—creates a data trail since the entire process is automated. This gives Scrum ceremonies the Empirical Transparency they need. The Burndown Chart (explained in Part 2) is now a real-time representation of automated test successes and unsuccessful builds rather than a "guess" [15].

13.2. Possible Limitations and Risks

13.2.1. Complexity and the "Tooling Tax"

Managing Selenium POM frameworks, Postman collections, and GitHub Actions YAML files is quite difficult. It calls for "Full-Stack Engineers" who are knowledgeable with cloud networking and infrastructure-as-code in addition to code. The initial **setup costs** (in terms of time and skill) may be exorbitant for smaller teams [15], [25].

13.2.2. Test Flakiness and False Positives

UI testing are infamously brittle. Even with flawless code, a Selenium test may fail due to a sluggish network connection in a UK data centre. When a team receives too many "false alarms," they start to disregard the automatic alerts, which can lead to a dangerous culture of complacency where actual issues go unnoticed [23], [24].

13.2.3. Security and Supply Chain Vulnerabilities

Attackers view automated pipelines as high-value targets. A malicious actor can immediately inject code into the Amazon UK live site if they manage to obtain a GitHub Action "secret" (such an AWS deployment key). The development lifecycle becomes much more complicated when SwDevOps adoption necessitates a concurrent commitment to **DevSecOps** [22].

14. Final Synthesis and Summary

Agile methodology and SwDevOps automation must be smoothly linked in order to operate a web service like as **Amazon.co.uk** in 2026. I assessed the **Burndown Chart**, which offers the visual transparency needed for sprint health, and the **Bucket System** for estimating, which offers the speed needed for relative scaling.

I saw how **GitHub Actions** serves as the orchestration layer in the last technical segment, integrating **Selenium** (for frontend experience) and **Postman/Newman** (for backend integrity) into a single automated process. SwDevOps is the gold standard for contemporary software engineering because of its advantages of massive-scale velocity and decreased mean-time-to-recovery (MTTR), despite the drawbacks of tool complexity and test flakiness.

The SwDevOps division of Amazon has to transition from "Shift-Left" testing to "Shift-Smart" operations by the end of 2026. The major areas of focus for the upcoming stage of the platform's development are highlighted in the following strategic summary: **AI-Enhanced Orchestration**: It will be crucial to incorporate AI-driven "Self-Healing" methods into Postman and Selenium. AI can minimise human test maintenance by up to 90%, as demonstrated by recent research, freeing up engineers to concentrate on innovative architecture rather than repairing malfunctioning scripts [1].

The SwDevOps division of Amazon has to transition from "Shift-Left" testing to "Shift-Smart" operations by the end of 2026. The major areas of focus for the upcoming stage of the platform's development are highlighted in the following strategic summary: **AI-Enhanced Orchestration**: It will be crucial to incorporate AI-driven "Self-Healing" methods into Postman and Selenium. AI can minimise human test maintenance by up to 90%, as demonstrated by recent research, freeing up engineers to concentrate on innovative architecture rather than repairing malfunctioning scripts [28].

The Development of DevSecOps: Security is now an embedded capability rather than a finishing step. Every GitHub Action is assessed in real-time for supply-chain vulnerabilities (SCA) and static code faults (SAST) as part of Amazon.co.uk's 2026 Zero-Trust Pipeline standard [29].

FinOps and Green Coding: Sustainability is now a technical KPI. Future editions of SwDevOps must use FinOps to prohibit code that is structurally inefficient and results in needless cloud expenditures, while also prioritising "Green Coding" to lessen the carbon footprint of the UK's enormous cloud footprint [29].

Final Closing

In conclusion, the effectiveness of unified workflows is demonstrated by the successful delivery of a worldwide web application such as Amazon.co.uk. Organisations can attain a level of continuous delivery that is both quick and surprisingly resilient by bridging the gap between machine-centric automation (SwDevOps) and human-centric Agile frameworks (Scrum).

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FINAL GRADE

77 / 100

GENERAL COMMENTS

This is a well-structured and comprehensive submission that demonstrates solid understanding of Agile concepts, Scrum methodology, estimation techniques, and SwDevOps practices.

The report covers all required topics systematically, with clear numbered headings, appropriate figures from class exercises, and a professional presentation.

The student shows good theoretical knowledge across all three sections, explaining user story flow, the Bucket System, burndown charts, and the roles of GitHub Actions, Postman, and Selenium with reasonable depth.

The inclusion of a practical case study using Amazon.co.uk provides useful context for the SwDevOps evaluation.

However, the critical analysis could be strengthened in places, as some sections lean towards description with evaluative language rather than genuine critical synthesis comparing approaches or taking a justified position.

There are concerns regarding source verification, as several references cite future publication dates (2025-2026) and some DOI links appear to redirect to search engines rather than actual papers, which undermines academic credibility.

The writing is generally clear and professional, though occasional repetition (such as the duplicated paragraph in the conclusion) suggests the work would benefit from more careful proofreading.

Overall, this represents good work at upper second class level, with scope to achieve higher marks through deeper critical engagement and more rigorous source verification.

Agile Concepts and Scrum Methodology

Section 1 Engagement with Literature 12 out of 16

Section 1 Knowledge and Understanding 13 out of 16

Section 1 Cognitive and Intellectual Skills 6 out of 8

Section 1 Total 31 out of 40

Estimation and Burndown Charts

Section 2 Engagement with Literature 6 out of 8

Section 2 Knowledge and Understanding 6 out of 8

Section 2 Cognitive and Intellectual Skills 3 out of 4

Section 2 Total 15 out of 20

SwDevOps Evaluation

Section 3 Engagement with Literature 12 out of 16

Section 3 Knowledge and Understanding 13 out of 16

Section 3 Cognitive and Intellectual Skills 6 out of 8

Section 3 Total 31 out of 40

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