

Bug Triage & Hotfix Simulation

Time: 30 minutes

Platform: [GitHub.com](https://github.com) (Free)

Experience Level: Beginner - No prior GitHub experience required

PRE-ACTIVITY PREPARATION

What You Need Before Starting

- Computer with internet access
- Web browser (Chrome, Firefox, or Safari recommended)
- GitHub account
 - *If no account: go to github.com and click "Sign up"*
 - *Use your student email*
 - *Choose the free plan*

PART 1: REPOSITORY SETUP (3 minutes)

Step 1.1: Navigate to GitHub

ACTION: Open browser and go to GitHub

1. **Open your web browser**
2. **Type in address bar:** `github.com`
3. **Press Enter**
4. **Sign in to your account:**
 - Top-right corner: Click "**Sign in**"
 - Enter your username/email and password
 - Click "**Sign in**" button

VERIFICATION: You should see your GitHub dashboard with repositories list.

Step 1.2: Create New Repository

ACTION: Create the project home

1. **Locate the "+" icon** in top-right corner of any GitHub page
2. **Click the dropdown arrow** next to the "+"
3. **Select "New repository"** from the dropdown menu

FILL IN REPOSITORY DETAILS:

4. **Owner field:** Make sure it shows YOUR username (not an organization)
5. **Repository name:** Type exactly → `ecommerce-emergency-fix`
 - *Why this name? It describes our scenario*
6. **Description:** Type → Emergency bug fix simulation for e-commerce site
7. **Visibility:** Select  **Public**
 - *This makes it visible to everyone - required for classroom*
8. **Initialize this repository section:**
 - **CHECK** "Add a README file"
 - **SELECT ".gitignore template"** → Click dropdown → Type "Python" → Select "Python"

SCREENSHOT CHECK: Your screen should look like this:

Repository template: No template

Owner: [your-username] ✓

Repository name: ecommerce-emergency-fix

Description: Emergency bug fix simulation for e-commerce site

- Public - Anyone can see this repository
- Private - You choose who can see and commit

Initialize this repository with:

- Add a README file

.gitignore: Python ✓

9. Click green "Create repository" button

Step 1.3: Verify Repository Creation

ACTION: Confirm everything worked

LOOK FOR THESE ELEMENTS on your new repository page:

1. **Repository name** at top: ecommerce-emergency-fix
2. **Tabs below name**: Code - Issues - Pull requests - Actions - Projects - etc.
3. **Files list** should show:
 - o README.md
 - o .gitignore
 - o LICENSE
4. **Branch indicator**: Should say "branch: main"

IF SUCCESSFUL: You have created your project home!

PART 2: PROJECT BOARD SETUP (2 minutes)

Step 2.1: Navigate to Projects

ACTION: Create our Kanban board

1. **Look at the row of tabs** under your repository name
2. **Click on "Projects" tab** (about 5th from left)
3. **You'll see a message:** "No projects have been added to this repository yet"
4. **Click the green "New project" button**

Step 2.2: Create Project Board

ACTION: Set up our workflow tracker

1. **A popup appears** with two options: "Board" and "Table"
2. **Click "Board"** (this gives us the Kanban-style columns we need)
3. **Project board name field:** Type Emergency Response Board
4. **Click green "Create project" button**

Step 2.3: Configure Columns

ACTION: Set up our emergency workflow stages

FIRST - REMOVE DEFAULT COLUMNS (if any):

1. **Look at your board** - you might see default columns like "To do", "In progress", "Done"
2. **For each default column:**
 - o **Hover your mouse** over the column header (like "To do")
 - o **Three dots ... will appear** on the right side of the header
 - o **Click the ...**
 - o **Select "Delete column"** from dropdown
 - o **Confirm** if asked

SECOND - ADD OUR COLUMNS:

Add these in exact order from left to right:

3. **Click "+ Add column" button** (top-right of board)
4. **Column name:** Type Reported Bugs
5. **Click "Create column"**
6. **Repeat for remaining columns:**
 - o Click "+ Add column" → Name: Triage → "Create column"
 - o Click "+ Add column" → Name: In Progress → "Create column"
 - o Click "+ Add column" → Name: Testing → "Create column"
 - o Click "+ Add column" → Name: Deployed → "Create column"

VERIFICATION: Your board should now have 5 columns in this exact order:

[Reported Bugs] [Triage] [In Progress] [Testing] [Deployed]

IF COLUMNS ARE OUT OF ORDER: Click and drag column headers to rearrange them.

PART 3: BUG REPORTING (10 minutes)

Step 3.1: Navigate to Issues

ACTION: Create our first emergency bug report

1. Click the "Issues" tab in your repository navigation
2. Click the green "New issue" button

Step 3.2: Create CRITICAL Bug Report

ACTION: Report the payment system failure

TITLE SECTION:

1. Click in the "Title" field at the top
2. Type exactly: Checkout payment failing for all customers

DESCRIPTION SECTION:

3. Click in the "Write" area below the title

4. Copy and paste EXACTLY this text:

****Critical Production Bug****

****Problem**:** Payment gateway integration is failing for 100% of checkout attempts

****Impact**:**

- Zero sales processing
- Customers unable to complete purchases
- Revenue completely blocked

****Steps to Reproduce**:**

1. Add item to cart
2. Proceed to checkout
3. Attempt payment
4. See error: "Payment processing failed"

****Urgency**:**  HIGH - Business critical

RIGHT SIDEBAR CONFIGURATION:

5. Labels section:

- o Click "Labels" in right sidebar
- o Start typing critical → Press Enter
- o Type bug → Press Enter
- o Type hotfix → Press Enter
- o If they don't exist, GitHub will create them

6. Projects section:

- o Click "Projects" in right sidebar
- o Select "Emergency Response Board" from list
- o Then select "Reported Bugs" from the dropdown that appears

7. Assignees section:

- o Click "Assignees" in right sidebar
- o Select YOUR username from the list

8. Click green "Submit new issue" button

VERIFICATION: You should see your new issue page with all the information you entered.

Step 3.3: Create MEDIUM Priority Bug

ACTION: Report the mobile image issue

1. Click the "Issues" tab again
2. Click "New issue"

TITLE: Product images not loading on mobile devices

DESCRIPTION (copy and paste):

****Visual Bug - Medium Priority****

****Problem**:** 50% of product images fail to load on mobile

****Impact**:**

- Poor user experience on mobile
- May affect conversion rates
- Doesn't block purchases

****Steps to Reproduce**:**

1. Browse on mobile device
2. Navigate to product listings
3. Observe broken images

****Urgency**:**  MEDIUM - Affects user experience

RIGHT SIDEBAR:

- **Labels:** Click → Add bug, frontend, mobile
- **Projects:** Click → Select "Emergency Response Board" → "Reported Bugs"
- **Assignees:** Leave empty
- **Click "Submit new issue"**

Step 3.4: Create LOW Priority Bug

ACTION: Report the cosmetic footer issue

1. Click "Issues" tab → "New issue"

TITLE: Footer alignment issue on about page

DESCRIPTION:

****Cosmetic Bug - Low Priority****

****Problem**:** Footer misaligned on about page

****Impact**:**

- Visual imperfection only
- No functional impact
- Doesn't affect user tasks

****Steps to Reproduce**:**

1. Go to /about page
2. Scroll to bottom
3. See misaligned footer

****Urgency**:**  LOW - Cosmetic only

RIGHT SIDEBAR:

- **Labels:** Click → Add bug, css

- **Projects:** Click → "Emergency Response Board" → "Reported Bugs"
- **Assignees:** Leave empty
- **Click "Submit new issue"**

Step 3.5: Verify All Bugs Reported

ACTION: Confirm all issues are in the board

1. **Click "Projects" tab**
2. **Select "Emergency Response Board"** if not already viewing it
3. **LOOK at "Reported Bugs" column** - you should see all 3 issues there

VISUAL VERIFICATION:

Reported Bugs Column:

- Checkout payment failing for all customers
- Product images not loading on mobile devices
- Footer alignment issue on about page

PART 4: BUG TRIAGE PROCESS (5 minutes)

Step 4.1: Move All Issues to Triage

ACTION: Begin the prioritization process

1. **In your Project Board**, look at the "Reported Bugs" column
2. **Click and hold** on the "Checkout payment failing" issue card
3. **Drag it** to the "Triage" column
4. **Release mouse button** to drop it
5. **Repeat** for the other two issues

VERIFICATION: All 3 issues should now be in the "Triage" column.

Step 4.2: Mental WIP Limit Setup

ACTION: Understand Work In Progress limits

CONCEPT EXPLANATION:

- "We'll set a mental WIP limit of 2 for 'In Progress'"
- "This means maximum 2 bugs can be worked on simultaneously"
- "Why? Prevents team overload and context switching"

Step 4.3: Prioritize by Business Impact

ACTION: Decide fix order

ANALYZE EACH BUG:

1. **Checkout payment issue:**
 - **Impact:** Business is losing money RIGHT NOW
 - **Users affected:** 100% of paying customers
 - **Decision:**  FIX FIRST - CRITICAL
2. **Mobile images issue:**
 - **Impact:** Poor experience, might lose some sales
 - **Users affected:** 50% of mobile users
 - **Decision:**  FIX SECOND - MEDIUM
3. **Footer alignment issue:**
 - **Impact:** Visual only, no functional impact
 - **Users affected:** Users who visit about page
 - **Decision:**  FIX LAST - LOW

VERIFICATION: You have mentally ordered the bugs by priority.

PART 5: HOTFIX DEPLOYMENT (15 minutes)

Step 5.1: Start Fixing Critical Bug

ACTION: Begin emergency work on payment issue

1. **In Project Board**, drag "Checkout payment failing" from "Triage" → "In Progress"
2. **Notice:** Now 1 item in "In Progress" (we have 2 max)

Step 5.2: Create Emergency Branch

ACTION: Make a safe place to write our fix

1. **Click "Code" tab** in your repository
2. **Look for branch indicator** - it says "main" in a dropdown
3. **Click the "main" branch dropdown**
4. **In the "Find or create a branch" search box**, type: hotfix/checkout-payment
5. **Press Enter** on your keyboard

VERIFICATION: You'll see a message "Created branch hotfix/checkout-payment from main" and the branch dropdown now shows "hotfix/checkout-payment"

Step 5.3: Make Emergency Code Change

ACTION: Simulate fixing the payment gateway

1. **In the file list**, click on [README.md](#)
2. **Click the pencil icon** (on right side of file view) that says "Edit this file"
3. **Scroll to the bottom** of the README content
4. **Add this text** at the very end:

Hotfix Deployments

- [2024-01-15] Fixed payment gateway integration

5. **Scroll down** to the "Commit changes" section at bottom
6. **Commit message** (first field): Type EMERGENCY: Fix payment gateway failure
7. **Extended description** (second field): Leave empty
8. **Commit directly to:** Make sure "hotfix/checkout-payment" is selected
9. **Click green "Commit changes" button**

VERIFICATION: You'll see the updated README file with your new section.

Step 5.4: Create Emergency Pull Request

ACTION: Request to merge our fix

1. **After committing**, you'll see a yellow banner at top:
hotfix/checkout-payment had recent pushes less than a minute ago
2. **Click the green "Compare & pull request" button** in that banner

CONFIGURE THE PULL REQUEST:

3. **Title field:** Change to 🚨 HOTFIX: Restore payment processing
4. **Description field** (copy and paste - REPLACE #1 with your actual issue number):

Emergency Fix

Restores payment gateway functionality after complete outage

Changes:

- Updated payment API integration
- Fixed authentication token handling
- Added error logging

Testing

- Payment processing restored

- Test transactions successful
- Multiple payment methods working

****Closes #1**** <!-- IMPORTANT: Replace #1 with your actual issue number -->

To find your issue number: Look at the issue URL or in the right sidebar under "Linked issues"

5. Right sidebar configuration:

- o **Reviewers:** Click → Select your username
- o **Assignees:** Click → Select your username
- o **Labels:** Click → Add critical, hotfix
- o **Projects:** Should auto-show "Emergency Response Board"

6. Click green "Create pull request" button

Step 5.5: Simulate Emergency Code Review

ACTION: Practice the review process

1. In the new PR, click "Files changed" tab
2. Find the lines you added in [README.md](#) (the Hotfix Deployments section)
3. Hover to the left of any line until a blue "+" appears
4. Click the "+" and a comment box appears
5. Type this comment: Confirm we've tested with multiple payment providers?
6. Click "Add single comment"
7. Go back to "Conversation" tab
8. Click "Review changes" dropdown button
9. Select "Approve"
10. Comment box: Type Emergency approved - critical business impact
11. Click "Submit review"

Step 5.6: Merge and Deploy

ACTION: Complete the hotfix

1. Click green "Merge pull request" button
2. Click "Confirm merge"
3. Click "Delete branch" (optional but good practice)

Step 5.7: Update Workflow Status

ACTION: Move the issue through our board

1. Go to "Projects" tab → "Emergency Response Board"
2. Drag "Checkout payment" issue from "In Progress" → "Testing"
3. Wait 5 seconds (simulating quick testing)
4. Drag from "Testing" → "Deployed"

VERIFICATION: Critical bug should now be in "Deployed" column!

Step 5.8: Process Remaining Bugs

ACTION: Continue with other issues within WIP limits

1. Check WIP limit: Only 1 spot free in "In Progress" (we have 2 max)
2. Drag mobile images issue from "Triage" → "In Progress"
3. Repeat steps 5.2-5.7 for this issue with:
 - o Branch: fix/mobile-images
 - o Commit message: Fix mobile image loading
 - o README addition: - [2024-01-15] Fixed mobile image loading issues
4. Finally, process the low-priority footer issue

PART 6: RETROSPECTIVE & LEARNING (5 minutes)

Step 6.1: Review What We Accomplished

LOOK AT YOUR FINAL BOARD:

- 1 critical bug: Identified, fixed, deployed
- 1 medium bug: In progress or completed
- 1 low bug: Waiting in triage or in progress
- WIP limits respected
- Emergency process followed

Step 6.2: Key Learning Points

DISCUSS THESE QUESTIONS:

1. Why did payment issue go first?
2. What did WIP limits prevent?
3. How was hotfix different from normal process?
4. What would you tell customers during this?

Step 6.3: Real-World Connections

THIS HAPPENS IN REAL COMPANIES:

- Amazon, eBay, Shopify all face similar emergencies
- WIP limits are used by Toyota, Microsoft, Google
- Hotfix branches are standard in software engineering
- Priority triage saves companies millions

FINAL VERIFICATION CHECKLIST

Task	Status
<input checked="" type="checkbox"/> Repository ecommerce-emergency-fix exists	<input type="checkbox"/>
<input checked="" type="checkbox"/> Project board with 5 correct columns	<input type="checkbox"/>
<input checked="" type="checkbox"/> 3 bug issues created with proper labels	<input type="checkbox"/>
<input checked="" type="checkbox"/> Critical bug completed full workflow to "Deployed"	<input type="checkbox"/>
<input checked="" type="checkbox"/> Emergency PR created, reviewed, and merged	<input type="checkbox"/>
<input checked="" type="checkbox"/> WIP limit respected (max 2 in progress)	<input type="checkbox"/>
<input checked="" type="checkbox"/> Understanding of business impact prioritization	<input type="checkbox"/>