Capstone Team Name: _____ **School:** _____

Track & Project Title: _____ **Class:** _____

Session 43: Capstone Building, Testing & Iteration

In Session 42, you agreed on your team's project track, wrote your Project Charter, set up your folder tree, and saved your initial **Version 0.1 Skeleton**. Today is **Build & Test Day**! You will flesh out your prototype into a working tool, test it with real users, and refine it into an award-worthy project.

1. Plain Talk: The Clay Potter at the Wheel

Think about a traditional potter shaping an earthenware cooking pot (*Asanka*): they do not simply slap wet clay on the wheel once and put it in the fire. They spin the wheel, check the thickness with their fingers, smooth the cracks, test the balance, and trim the rim. If a wall is too thin, they reinforce it.

In software development, this process is called **Iteration**: building a draft, testing it with real people, discovering flaws, and making it better through repeated cycles!

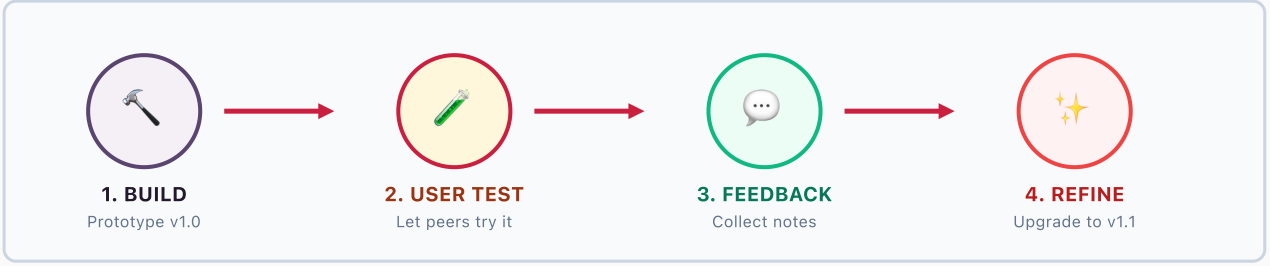

Figure 43.0: The Iterative Design Cycle. You build, test with peers, gather feedback, and upgrade!

2. Essential Capstone Vocabulary

- **Working Prototype (v1.0):** A draft version that has all its real words, formulas, or code blocks in place so someone can actually use it.
- **User Testing:** Watching someone else try to read your document, calculate with your sheet, or play your game without giving them hints.
- **Iteration:** Making changes and improvements based on what you discovered during testing.
- **Change Log:** A written record tracking what bugs you fixed and what features you upgraded.

1. Why You Cannot Test Your Own Work

When you build a project, you know where every button is, what every word means, and how the math works. You are biased! An outside classmate looks at your project with **fresh eyes**. If they get confused, that is not their fault—it is proof that your project needs clearer design!

Figure 43.1: The Silent User Test. Watch what your tester struggles with without whispering answers!

2. What to Watch for Across the 4 Tracks

Project Track	What the Tester Must Do	Red Flags to Watch For
Track A: Notice + Pitch	Read the notice, then click through the 3 slides.	Tiny text; confusing headings; typos; crowded slides.
Track B: Excel Sheet	Change one quantity and look at the chart.	##### (column too narrow); chart doesn't update; totals wrong.
Track C: Scratch Game	Play the game using keyboard or mouse.	Sprite gets stuck on edge; score doesn't reset; lag.
Track D: Report + Guide	Read the report, then click through the photo/slide guide.	Missing citations; unchecked facts; squished photos.

1. Not All Feedback is Equal

When someone tests your project, they will give you opinions. Some suggestions are pure gold that will save your project; others might be personal preferences that don't fit your goal. You must **triage** your feedback:

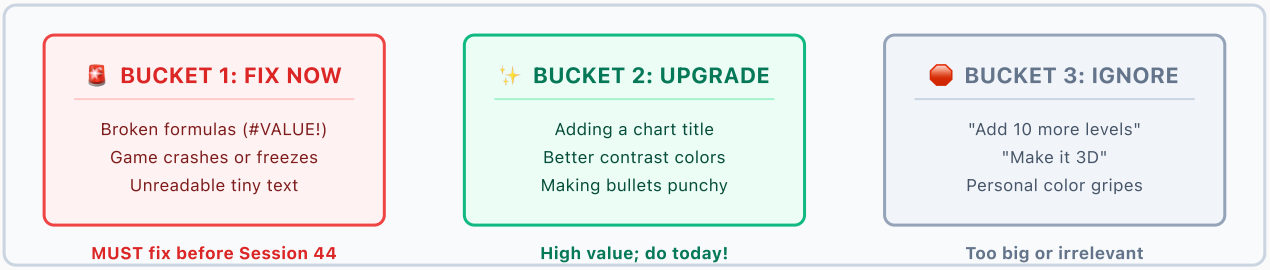

Figure 43.2: Feedback Triage. Prioritize critical bugs and clear improvements; ignore distractions.

2. Handling Emotional Reactions to Critique

YOU ARE NOT YOUR PROJECT!

When someone points out a flaw in your project, it is easy to feel hurt or angry.

Remember the Innovator's Mindset: Your peer is not criticizing *you*; they are helping you find the loose nails in the table so it doesn't collapse on stage during Session 44! Smile, say *"Thank you for spotting that,"* and get to work fixing it.

1. Professional Version Tracking

In technology companies, engineers never just say *"we fixed some stuff"*. They keep a formal **Change Log** showing what changed between versions:

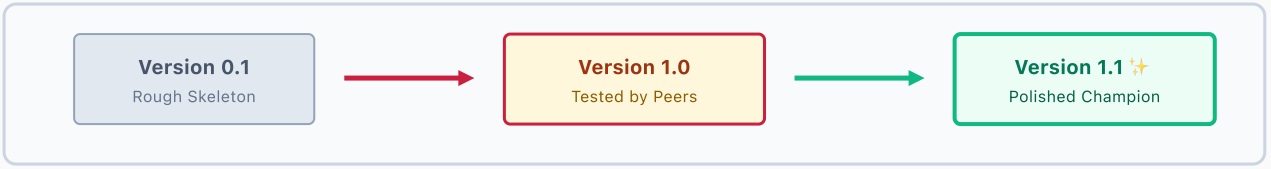

Figure 43.3: Version progression. Feedback transforms raw prototypes into polished solutions.

2. Your Team's Change Log (Fill in as you work today)

Bug / Flaw Spotted	What Was Wrong	How We Fixed It in v1.1
Example Fix:	Total row was included in the bar chart, making items tiny.	Reselected only the item rows; total row excluded!
Fix 1:	----------	----------
Fix 2:	----------	----------

1. Lab Workout: From Skeleton to Champion

Follow the 5 structured phases of today's Capstone sprint:

1. **Phase 1: Build Working Prototype v1.0 (25 Minutes):**
   Open your file from Session 42. Fleshing out the content:
   • *Track A (Notice + Pitch):* Write the notice (headings, bullets), then all 3 slides (6x6 rule).
   • *Track B (Sheet):* Enter your items (at least 4), calculate totals with =B2*C2, add =SUM and =AVERAGE, build a column (or pie) chart.
   • *Track C (Game):* Complete the movement loop, score variable, and collision condition.
   • *Track D (Report + Guide):* Write the report with citations, then add photos/slides to the guide.
   Save as: Capstone_v1.0_[ProjectName].

2. **Phase 2: The Swap (5-Minute Silent User Test):**
   Trade computers with your assigned testing partner team.
   The tester sits down and tries out the project without the creators saying a word!

3. **Phase 3: Complete Peer Evaluation Sheet:**
   The tester completes the rubric on **Page 6** of this workbook honestly.

4. **Phase 4: Return & Refine to Version 1.1 (20 Minutes):**
   Return to your workstation. Read your peer's notes.
   Make at least **TWO concrete improvements** to your files!

5. **Phase 5: Final Pre-Showcase Save:**
   Save your improved project as: Capstone_v1.1_[ProjectName] in Documents > BIH_Practice > Capstone_[TeamName] > Final_Showcase.

2. Pre-Showcase Readiness Checklist

- [ ] Spell check done on everything (no red squiggly lines).
- [ ] Every team member's name is on the title.
- [ ] Formulas start with = (spreadsheets).
- [ ] Pictures resized from the corner handles (no squished pictures).
- [ ] Sources cited (in a footer or on the last slide).
- [ ] No real private data: only fictional names and numbers.
- [ ] Final file saved as ..._v1.1 in Final_Showcase .

1. Official Peer Testing Evaluation Form

(To be completed by your Peer Reviewer during the Silent User Test)

Project Tested: _____ **Tester Name:** _____

Quality Dimension Tested	Confusing / Buggy	Working Well!	Superstar! ⭐
Clarity: Is the community problem and goal immediately clear?	○	○	○
Functionality: Did all buttons, formulas, code, or slides work without crashing?	○	○	○
Visual Layout: Are fonts readable, colors contrasted, and images un-squished?	○	○	○
Community Impact: Does this project genuinely help Ghana?	○	○	○

The #1 Best Thing About This Project:

The Most Confusing Thing / Bug I Encountered:

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2. Milestone 2 Mentor Approval Sign-Off

(Your mentor must inspect your working v1.1 file before Session 44 showcase rehearsal!)

MENTOR SHOWCASE CLEARANCE:

[ ] Project Version 1.1 verified functional & bug-free.
[ ] Peer feedback integrated into Change Log.
[ ] Team is cleared to present on stage during Session 44 Demo Day!

Mentor Signature: _____ **Date Cleared:** _____