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Thanks for filling out this form: Project-Based Learning (PBL) Report

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Project-Based Learning (PBL) Report

Before you begin filling out this form, please make sure you have the following items ready:

- Your day-wise notes for all stages of Design Thinking — *Empathize, Define, Ideate, Prototype, and Test*
- Screenshots of your innovation
- Screen recordings showcasing your innovation's working model

- Images of your innovation created during the Day 2 take-home task

This form is designed to capture your reflections, ideas, and learnings from the innovations you developed as part of the **IBM SkillsBuild PBL activity**. Please take 5–10 minutes to complete it thoughtfully and honestly.

Email *

suvakovan05082005@gmail.com

Name *

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Trainer name *

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Qualification (Degree) *

B.E - computer science engineering

Day 1

Design Thinking Process Step 1 & 2: Empathise & Define

Step 1: Understanding the Need *

Which problem am I trying to solve?

Traditional portfolios and resumes are static, boring, and fail to effectively demonstrate the unique technical personality of a cyber security enthusiast. They "tell" skills rather than "showing" them. I am solving the disconnection between a user's skills (security, terminal usage) and how they present themselves online, creating a need for a portfolio that feels like a real hacking tool.

Step 2: What is the problem?

The problem I want to solve in **one clear sentence**

[You can try a prompt like this: *"I am ideating a solution for <enter your problem in detail> Convert this problem into a single clear sentence which I can share to an audience"]*

"Standard web portfolios fail to capture the essence of a cyber security professional, often resulting in missed opportunities to demonstrate technical competence and unique identity to recruiters and clients."

Why is this problem important to solve? *

[You can try a prompt like this: *"Draft 1-2 lines on why this problem is important to solve. Support this with evidence using relevant data points"]*

Identity and differentiation are critical in the tech industry. A static PDF cannot convey the feeling of using a secure system, whereas an interactive terminal UI immediately proves the developer's ability to build complex, immersive interfaces, increasing engagement and job prospects.

Take-home task *

Ask 2–3 people (you can speak to your family members, friends, teachers, trainers) what they think about this problem. Write down surprising or new things you learn below.

1. **Peer (Cyber security Student):** "I didn't realize how boring normal websites looked until I saw this. It's surprising how much cooler it feels just by adding a typing animation and a dark theme."
2. **Recruiter/Teacher:** "The most important thing is that it still needs to be easy to use. If I can't find the 'Contact' page because I don't know the terminal commands, that's a problem." * (Insight: Need to ensure GUI fallback exists).*
3. **Non-Tech Friend:** "It looks like a movie! But does the 'Secure Vault' actually hide anything important? It would be cool if the 'secrets' were actually valuable links or projects."

Day 2

Design Thinking Process Step 3: Ideation

Step 3: Brainstorming solutions *

List **at least 5 different solutions** (wild or realistic)

[You can try a prompt like this: *"I am ideating solutions for <enter your problem in detail> Suggest 5 unique solutions for this problem, which I can easily accomplish in 2 days using free, open-source mobile-friendly AI tools"]*

1. **The "Interactive Web Terminal" (Realistic):** A React-based website that simulates a Linux command line. Users type commands like `ls` and `cat` to view projects. *Impact: High immersion, demonstrates coding skills directly.*
2. **The "AI Hacker Bot" (Wild):** A conversational AI portfolio where a chatbot "interrogates" the recruiter before revealing the candidate's resume. *Impact: Very unique, but might be annoying for quick scanning.*
3. **The "Gamified CTF Information" (Wild):** The resume is hidden inside a Capture-The-Flag game. The user must solve simple crypto puzzles to unlock the phone number/email. *Impact: Proves security skills immediately, but high barrier to entry.*
4. **The "AR Business Card" (Realistic):** A printable QR code that, when scanned with a phone, projects a 3D hologram of the user's projects floating in the air. *Impact: "Wow" factor, but requires the user to install an app or use a specific browser feature.*
5. **The "Steganographic Resume" (Wild):** A single seemingly innocent image file sent to recruiters. When analyzed with a specific tool (provided on a link), it extracts the full portfolio data. *Impact: Extremely "hacker" style, but impractical for standard HR systems.*

Step 4: My favourite solution: *

Selected Solution: Solution #1: The "Interactive Web Terminal" (SECTION-404)

Step 5: Why am I choosing this solution?

*

Justification: I chose the Interactive Web Terminal because it hits the "sweet spot" between **innovation** and **accessibility**. 1. **Feasibility:** It can be built in 2 days using open-source tools like React and Vite (which I have already done). 2. **User Experience:** Unlike the "CTF" or "Steganography" ideas, it is still a functional website. If a recruiter doesn't want to type commands, they can still click links (GUI fallback), satisfying the feedback from Step 1. 3. **Relevance:** It directly mimics the daily work environment of a security professional (the terminal), making it the most "on-brand" solution for the specific problem defined in Step 2. 4. **Performance:** It is lightweight, mobile-friendly, and loads instantly, unlike heavy 3D or AR solutions.

Take-home task *

Generate the image of your solution and how it will look (eg: “a bag that charges your phone while you walk”)

Attach the image in this box below:

[You can try a prompt like this: “*I am ideating a solution for <enter your problem in detail> I have selected a solution which includes <enter your solution description> Generate an image for this solution]*

Submitted files

solution-concept - Refale Black.png

Question

Tools you can use for Day 2

ChatGPT/Perplexity AI:
You can use these tools to compare your solutions and choose the most effective one

AI Tools you can use
for the take-home task:

Canva AI/CoPilot
AI/Meta AI: Use these mobile-based tools to generate images for the solution they want to design

Day 3

Design Thinking Process Step 4 & 5: Building & Testing my Prototype

Step 6: Prototype – Building my first version *

What will my solution look like?

[Take inspiration from the image generated on Day 2 and describe the solution]

My solution is a web-based "Command Center" dashboard named SECTION-404. It features a dark, charcoal-colored theme with neon cyan and purple accents, mimicking the "Kali Linux" OS. The centerpiece is a functional command-line terminal where users can type `whoami`, `projects`, and `date`. Surrounding the terminal are glowing "glassmorphism" widgets displaying real-time "System Stats" (CPU, Memory) and a "Secure Vault" status, creating an immersive, high-tech hacker aesthetic.

What AI tools will I need to build this?

[You can try a prompt like this: *"I am ideating a solution for <enter your problem in detail> I have designed a solution which includes <enter your solution description> What open-source, free AI tools that I can use to build this solution? The tools should be easily available and accessible on my mobile. Do not recommend tools which requires cost or subscription"]*

*

Google Gemini - For generating the React code logic, CSS styling strategies, and debugging errors.
2. **ChaFtGPT (Free Tier)** - For brainstorming the "hacker" persona content and writing creative text for the modules.

Top AI tools I finally selected to build this solution? [Eg: Claude AI, Grok AI, Chatling AI]

Write it in 5 lines as 5 points

*

Top AI tools I finally selected to build this solution:
1. **Google Gemini** - For generating the React code logic, CSS styling strategies, and debugging errors.

2. **ChatGPT (Free Tier)** - For brainstorming the "hacker" persona content and writing creative text for the modules.
3. **Hugging Face Spaces** - To explore open-source image generation models for the cyberpunk assets.
4. **Blackbox AI** - For specific coding questions related to terminal emulators in JavaScript.
5. **GitHub Copilot** - For speeding up the boilerplate code writing process.

Step 7: Test – Getting Feedback

Who did I share my solution with? [You may share it with your trainer, peers or even AI] *

I shared my solution with my **Trainer**, my **Class Peers**, and **AI Assistants (Gemini/ChatGPT)** for code review.

What positive feedback did I receive? *

"The typing animation feels very authentic and adds a great first impression." * "The 'Antogravity' dashboard looks incredibly professional with the glowing glass effects." * "I love that the terminal commands actually work, it's not just a video or GIF."

What feedback did I receive for improvement? *

"On mobile screens, the terminal text is a bit small, maybe increase the font size." * "It would be cool if the 'System Stats' were real instead of just animations." * "Add a 'Dark Mode' toggle? (Wait, it's already dark mode... maybe a 'Matrix Green' mode toggle)."

Take-home task

Record your solution and test feedback in voice notes.
Upload your voice notes, images and your solution/model on GitHub

AI Tools you can use for Step 6-7:

ChatGPT/Perplexity AI/Claude AI/Canva AI/Chatling AI/Figma AI: You can use these tools to build solutions/models or mock-up dummy prototypes

Day 4

Presenting & Reflecting on my Innovation

Step 8: Presenting my Innovation *

Final Project Title:

Final Project Title: **SECTION-404: The Cybersecurity Portfolio Terminal**

Key points of my presentation

*

[You can try a prompt like this with attachment/screenshot of your solution: "*I am ideating a solution for <enter your problem in detail> I have selected a solution which includes <enter your solution description> I tested the solution with <enter details of who tested your solution> and they gave the following feedback <enter feedback given by the testers> Generate a 1-minute pitch document with following headings: project title, problem statement, my innovation, feedback I received from users, impact of my innovation. Add the attached image in the pitch document*"]

Project Title: SECTION-404 - A Kali Linux Inspired Portfolio

* **Problem Statement:** Cybersecurity students struggle to stand out because standard resume websites are boring and don't demonstrate their specific technical skills or passion for the field.
* **My Innovation:** I built a fully interactive web terminal that gamifies the portfolio experience. Instead of just reading about my skills, recruiters have to "hack" (type commands) to find them, which immediately proves I know how to build immersive, complex systems.
* **Feedback from Users:** Testers loved the "movie-like" feel and the fact that the terminal was functional, not just a picture. They suggested checking mobile font sizes, which I improved.
* **Impact:** This project turns a boring document into an unforgettable experience, increasing the chance of getting hired by demonstrating creativity and technical competence instantly.

Step 9: Reflections *

What did I enjoy the most during this project-based learning (PBL) activity?

I enjoyed the "building" phase the most, specifically when I finally got the terminal typing animation to work perfectly. Seeing the code I wrote turn into something that looks like a high-tech movie interface was incredibly satisfying. I also loved using AI tools to help generate the

complex CSS for the "glassmorphism" effects, which allowed me to focus on the logic rather than fighting with pixel alignment. It felt like I was the director of my own sci-fi movie.

Upload images of your day-wise notes/responses of all questions
You can also combine your images into one PDF file and upload
*

Submitted files

IBM project - Refale Black.pdf

Upload Mini Project link *

https://section-404.vercel.app

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