MVP Pathway 1: QA Engineer ➔ Software Engineer

This "career change" pathway is for "Sample 2" user. It's designed to solve the "maze of online courses" and "self-taught vs. bootcamp" debate by providing one clear, trusted, free path.

1. Market Demand (The Skills to Learn)

- Job descriptions show a clear need for full-stack developers.
- **Core Language:** `JavaScript` for front-end, and its `Node.js` ecosystem for back-end.
- **Front-End:** `HTML`, `CSS`, `JavaScript`, and a modern framework, most commonly `React`.
- **Back-End & Database:** `Node.js` and `SQL` (like `PostgreSQL`) or a NoSQL database (like `MongoDB`).
- **The "Proof" (Your "Experience"):** A portfolio of `full-stack web applications` and familiarity with `Git`/`GitHub`.

2. Community Supply (The "Golden" Resources)

- Reddit data was *conclusive* on this. The community overwhelmingly recommends two main free, structured curriculums to cut through the noise:
    - **The Odin Project:** Repeatedly called the "best," "unrivaled," and "well-structured" free, project-based resource.
    - **FreeCodeCamp:** The other most-trusted, comprehensive, and free curriculum.

3. The "Navigator" MVP Pathway

- **Step 1: Learn the Foundations (HTML, CSS, Git)**
    - **Resource:** `The Odin Project: Foundations`
    - **Why it matters:** "This is the 'best' free, community-vetted curriculum. It will teach you the basics *and* the critical tool (Git) that all employers demand, getting you hands-on immediately."
    - **MVP UI Tags:** `[Free-First]`, `[Project-Based]`

- **Step 2: Master Full-Stack JavaScript (React & Node.js)**
    - **Resource:** `The Odin Project: Full Stack JavaScript`
    - **Why it matters:** "This single path teaches you the exact front-end (React) and back-end (Node.js) technologies employers are asking for in job descriptions."
    - **MVP UI Tags:** `[Free-First]`, `[Project-Based]`
- **Step 3: Build Your "Experience" Project**
    - **Resource:** (Guided by The Odin Project's curriculum)
    - **Project:** "Build a full-stack `E-commerce Site` or `Social Media Clone`."

- ○ **Why it matters:** "Your Reddit data shows `personal projects` are the #1 substitute for `work experience`. This project proves you can do the job."
- ○ **MVP UI Tags:** `[Project-Based]`

MVP Pathway 2: Data Analyst ➔ Machine Learning Engineer

This "upskilling" pathway is for "Sample 5" user. It assumes they *already know* the basics (SQL, Python/Pandas, basic visualization) and focuses *only* on the skill gap to prevent them from "doing the same few things" again.

1. Market Demand (The Skill Gap)

- A Data Analyst (DA) *analyzes* data. A Machine Learning Engineer (MLE) *builds and deploys predictive models*.
- **The Gap:**
  1. **Advanced ML:** DAs know regression. MLEs must master `deep learning` (neural networks, CNNs) and a wider range of algorithms.
  2. **Software Engineering:** The biggest gap. It's `Git`, `data structures`, `containerization (Docker)`, and writing `testable code`.
  3. **MLOps (Deployment):** Knowing how to deploy a model using `cloud services (AWS, GCP, Azure)` and `REST APIs`.

2. Community Supply (The "Golden" Resources)

- **Kaggle:** This is the #1 free, community-vetted, hands-on resource for this *exact* user. It offers no-cost, certificate-bearing courses in `Intro to Machine Learning`, `Intermediate Machine Learning`, and `Intro to Deep Learning`. It is the perfect "real-world setting".
- **MIT Open Learning:** For filling the deeper math and CS gaps (like `Linear Algebra`, `Calculus`, and `Intro to CS/Python`) for free.

3. The "Navigator" MVP Pathway

- **Step 1: Master Core Machine Learning**
  - ○ **Resource:** `Kaggle: Intro to Machine Learning` & `Intermediate Machine Learning` Courses
  - ○ **Why it matters:** "This fills the gap between the simple analysis you're used to and building powerful, predictive models. These free, hands-on courses are the community's most-trusted starting point."

- ○ **MVP UI Tags:** [Free-First], [Project-Based], [Certification-Path]
- ● **Step 2: Learn Deep Learning & Computer Vision**
  - ○ **Resource:** Kaggle: Intro to Deep Learning Course
  - ○ **Why it matters:** "This is the 'AI-resistant' skill. You'll learn to build the neural networks that power modern AI, moving you far beyond the work of a traditional analyst."
  - ○ **MVP UI Tags:** [Free-First], [Project-Based], [Certification-Path]
- ● **Step 3: Build Your "Experience" Project**
  - ○ **Resource:** Kaggle Datasets & Competitions
  - ○ **Project:** "Build a Sentiment Analyzer or Customer Churn Prediction model."
  - ○ **Why it matters:** "Your 'stuck' feeling comes from analysis projects. This project proves you can *predict* outcomes, not just report on them. This is your key to a more advanced, secure role."
  - ○ **MVP UI Tags:** [Project-Based]
- ● **Step 4: Learn to Deploy Your Model (MLOps)**
  - ○ **Resource:** (Curated Free YouTube/Blog) "How to Deploy a scikit-learn model with FastAPI"
  - ○ **Why it matters:** "This is the final, most crucial step. It proves you are an *engineer*, not just an analyst. You can build a tool that the rest of the company can use."
  - ○ **MVP UI Tags:** [Free-First], [Visual Learning]