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Code4Lebanon x USJ Hackathon

Hackathon Challenge: National Program Monitoring & Analytics for NUMŪ

1. Challenge Overview

The Ministry is launching NUMŪ, a new national digital and AI upskilling program aimed at equipping citizens with critical future skills across technology, data, and artificial intelligence.

At this stage, NUMŪ's primary objective is understanding who the learners are, how they discover the program, what they want to learn, and where they are located geographically. This intelligence is essential to guide national partnerships, outreach strategies, and policy decisions.

The goal is to design and build a prototype of a National Monitoring & Analytics Dashboard for NUMŪ, using survey data as the core dataset, and learning platform data as a secondary enrichment layer.

2. Detailed Scope of Work

For this hackathon, you are building the foundation of the program's monitoring capability. Your task is to build a web prototype that acts as a survey-driven analytics engine.

The system must ingest data primarily from the **NUMŪ** registration survey to generate insights on dissemination performance, learner interests, and geographic reach. It must also verify completion status by checking secondary data from training providers.

3. The Data Architecture

The data architecture is **Survey-First**. You will handle two distinct types of data inputs:

A. Primary Source: The NUMŪ Registration Survey This is the core dataset. You will mock a survey database containing the following fields:

- **Participant Profile:** Name, Age Range, Employment Status, Job Level, Industry, Years of Experience.
- **Dissemination Channel:** The entity through which the learner found the program (Universities, Syndicates, Public Sector, NGOs, Employers).
- **Program Preferences:** Selected Training Track, Learning Motivations (e.g., career growth, job transition), Preferred Learning Format.
- **Location:** Geographic indicators (Region/City) or IP-based approximation.

B. Secondary Source: Provider Platforms (Microsoft & Oracle) While the survey is primary, the system must still acknowledge the training providers.

- **Role:** These are treated strictly as additional data sources to highlight completion rates and certificate obtention.
- **Data Points:** Student ID matches, Progress %, and Completion Status.

4. Backend Requirements

1. **Survey Data Ingestion:** You must connect to the **provided Survey Mock API**.
 - The backend must call this API to fetch the full dataset (demographics, tracks, channels, etc.).
2. **Normalization & Aggregation:** The backend must ingest the raw JSON from the Survey API and normalize the learner profiles. It must then aggregate this data to support specific frontend filters:
 - By Dissemination Channel (e.g., specific University or Syndicate).
 - By Track and Learner Profile.
 - By Region/Geography.

3. **Aggregation Engine:** The system must aggregate data to support specific frontend filters:
- By Dissemination Channel (e.g., specific University or Syndicate).
 - By Track and Learner Profile.
 - By Region/Geography.

5. Dashboard Requirements

The dashboard should focus on Policy and Program Monitoring, and must include the following four sections:

A. Dissemination Performance This is the critical metric for national coverage. The dashboard must visualize:

- **Registrations by Channel:** A breakdown of learners coming from Universities, Syndicates, Public Sector, NGOs, and Employers.
- **Deep-Dive Capabilities:** Users must be able to "zoom in" on specific sub-entities (e.g., viewing which specific University or Syndicate is driving the most traffic).
- **Growth Metrics:** Volume of registrations over time and track uptake by channel.

B. Interest & Strategy Insights To guide upcoming partnerships, the dashboard must analyze:

- **Areas of Interest:** Heatmaps or charts showing demand for AI Fundamentals, GenAI, Data Ethics, Automation, etc.
- **Motivations:** Visualizing why learners are joining (e.g., productivity vs. job transition).
- **Challenges:** Key challenges reported by learners (e.g., connectivity, time constraints).

C. Geographic Insights For equity and inclusion tracking, the dashboard must use declared location to display:

- **Regional Distribution:** Where are the learners located?
- **Gap Analysis:** Identification of underrepresented regions.
- **Channel Effectiveness by Region:** Which partners are most effective in specific geographic areas?

D. The Unified Learner Profile Display a comprehensive Unified Learner Profile based on survey data:

- **Administrative View:** Name, email, phone (for admin use only).
- **Demographics:** Age range, employment status, job level, industry.
- **Program Data:** Selected training track, access channel (with entity name), and self-assessed skill level.
- **Provider Status:** A badge indicating if they are tracking via Microsoft or Oracle.