**College of Informatics and Computing Sciences**

# Student Upskill Development Tracker: Hasa Kabataan - Solo Leveling

By:

Balbuena, Adrian G.
Bitancor, Joshua Vincent M.

*Leading Innovations, Transforming Lives, Building the Nation*

**Republic of the Philippines**
**BATANGAS STATE UNIVERSITY**
**The National Engineering University**
**Alangilan Campus**
**Golden Country Homes, Alangilan Batangas City, Batangas, Philippines 4200**
Tel Nos.: (+63 43) 425-0139 local 2222 / 2223
E-mail Address: cics.alangilan@g.batstate-u.edu.ph | Website Address: http://www.batstate-u.edu.ph

**College of Informatics and Computing Sciences**

**PROJECT OVERVIEW**

**Description:** "Hasa Kabataan: Solo Leveling" is a gamified skill-tracking application designed to assist student developers in monitoring their proficiency in various programming languages. Inspired by the visual style and progression system of the popular manhwa *Solo Leveling*, this system transforms the often-tedious task of skill development into an engaging, game-like experience.

**Problem it Solves:** Information Technology and Computer Science students often struggle with maintaining motivation and keeping track of their learning progress across multiple programming languages. Existing tools are often purely utilitarian or lack visual feedback. This project addresses the lack of engagement in self-study by providing a visual, interactive platform that rewards learning with tangible progress indicators.

**Key Features and Functionalities:**

- **Gamified User Interface:** Features a "Solo Leveling" inspired aesthetic with high-quality character avatars (Male/Female selection), dynamic background music, and interactive pulsing buttons.

- **User Profile Management:** Allows users to create, load, and delete profiles. Each profile saves the user's gender and specific skill progress in a MySQL database.

- **Skill Dashboard:** A visual dashboard displaying progress bars for five core technologies: Python, Java, HTML, C++, and MySQL.

- **Learning Hub:** Provides direct integration with curated YouTube tutorial playlists for each skill.

- **Assessment System:** Includes a "Problem Solver" module where users face coding challenges. It features a "Reveal Answer" capability for learning and an "Add Skill" mechanism that updates the database and increases the user's progress bar upon completion.

**Target Users:** The primary target users are Computer Science and Information Technology students, as well as self-taught developers who wish to track their upskilling journey in a structured and motivating environment.

*Leading Innovations, Transforming Lives, Building the Nation*

**Republic of the Philippines**
# BATANGAS STATE UNIVERSITY
**The National Engineering University**
**Alangilan Campus**
**Golden Country Homes, Alangilan Batangas City, Batangas, Philippines 4200**
Tel Nos.: (+63 43) 425-0139 local 2222 / 2223
E-mail Address: cics.alangilan@g.batstate-u.edu.ph | Website Address: http://www.batstate-u.edu.ph

**College of Informatics and Computing Sciences**

## PROJECT OBJECTIVES

The general objective of this project is to develop a Python-based graphical application that tracks and persists user skill progress using a database backend.

**Specific Objectives:**

- To create a responsive Graphical User Interface (GUI) using the Tkinter library that supports both portrait (login) and landscape (dashboard) views.

- To implement a persistent database connection using MySQL to store user credentials, avatar preferences, and progress percentages for five distinct programming skills.

- To provide an interactive assessment tool that dynamically updates user records in the database upon the successful completion of tasks.

## SYSTEM REQUIREMENTS

**Software Requirements:**

- **Python Version:** Python 3.10 or higher.

- **Database:** MySQL Server (e.g., via XAMPP or MySQL Workbench).

- **Required Python Libraries:**
  - tkinter (Standard GUI toolkit)
  - Pillow (Image processing)
  - pygame (Audio playback)
  - mysql-connector-python (Database connectivity)
  - webbrowser (Standard library for opening tutorial links)

**Hardware Requirements:**

- A computer capable of running Python and a MySQL server.

- Audio output device (speakers or headphones) for background music and sound effects.

- Minimum Screen Resolution: 1366x768 (Landscape view)

**College of Informatics and Computing Sciences**

## USAGE INSTRUCTIONS

**1. Database Setup:** Before launching the application, ensure the MySQL server is running. Create a database named hasaleveling_db and configure the user_progress table. Ensure the credentials in the code (DB_CONFIG) match your local database settings.

**2. Application Start:** Run the file HasaLeveling.py. The application will launch in a Portrait window (Main Menu).

**3. User Registration/Login:**

- Click **"Access Button" to start**.
- **To Register:** Click the "Create User" icon, select a Gender (Male/Female), click "Next", and enter a username (4-9 characters).
- **To Login:** Select an existing username from the dropdown menu and click the "Load User" icon.

**4. The Dashboard:** Once logged in, the window switches to Landscape mode.

- **Left Panel:** Click on a skill icon (e.g., Python, Java) to access learning materials.
- **Right Panel:** View your current progress bars for each skill.

**5. Tutorials and Quests:**

- **Tutorials:** Inside a skill menu, click the "Play" buttons to open YouTube learning resources in your web browser.
- **Problems:** Navigate to the "Problems" section via the bottom navigation bar. Select a folder (1-5) to view a problem statement.
- **Revealing Answers & Leveling Up:** Click "Reveal Answer" to see the solution. If the problem is understood, click the **"Add Skill"** button to instantly increase your progress bar by 20% in the database.

**6. Navigation:** Use the bottom navigation bar to switch between Home (Dashboard), Tutorials, Problems, or to Exit (Sign Out).

*Leading Innovations, Transforming Lives, Building the Nation*