USER MANUAL

CSC2510 Final Project – DeelTech User-Onboarding Automation System

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1. Introduction

- The DeelTech Faculty Automation System is a Bash-based tool that automates the process of gathering faculty names from the Tennessee Tech Computer Science department website and creating local Ubuntu user accounts for each professor.

- This manual explains how to run the program, how each feature works, and what a user needs to know to operate the scripts successfully.

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2. Requirements

- An active internet connection
- This program was tested and optimized for
  - Ubuntu 24.04
  - Bash 5.2.21+
  - An x86 system
- curl, grep, sed, and awk are installed
- sudo access (required for creating system users)
- A valid license key provided by the admin or a license file generated by the program and stored in "etc/csc_user_mgmt"

- In the terminal in the directory you have the scripts, please make sure to run the following command to make sure the scripts are in executable mode:

```
chmod +x *.sh
```

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3. Program Components

- The project is divided into four main parts:
  1. Web Scraper – downloads CS faculty webpage
  2. Parser – extracts clean names from the webpage
  3. User Creation Engine – generates usernames/passwords and creates Ubuntu accounts
  4. License System – validates the license before the program can be used and during the program's use.
- All scripts are stored in the same project directory.

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4. Using the Program

4.1 Running the Program

- To start, execute the command

  ```
  sudo bash ./interface.sh
  ```

- You will see:

  ```
  ==== DeelTech Faculty Portal ====
  1) Scrape + Parse (default)
  2) Scrape only
  3) Parse only
  4) Create users from names list
  5) Manually create a user
  ```

6) Exit

4.2 Scraping Names

- To select scraping and parsing type choose option 1:

    1) Scrape + Parse

- This will:
    - Download the TTU CS faculty page
    - Parse out faculty names
    - Save them into: data/names.txt
- You can also run the steps individually by choosing options 2 and 3.

4.3 Bulk User Creation

- After names have been scraped and parsed, choose option 4:

    4) Create users from names list

- The system will read each line from names.txt, extract the first and last name, and automatically create a user account.

    Username format: first.last

    Password format: firstnamelastnameDEELTECH

- If a user already exists, the script will skip them.

4.4 Manual User Creation

- The manual user tool allows you to add one user at a time, by selecting:

    5) Manually create a user

- The script will ask for:

- First name (letters only)
- Last name (letters only)

- It will then generate the username and password using the same format as the bulk creator.

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5. License System

- Before any menu actions can run, the program requires a valid license.
- There are two ways the license can be provided:

    1. A valid .dat license file in: /etc/csc_user_mgmt/

    2. Entering a 16-digit key on first run

- The key is securely encrypted by a one way hashing algorithm along with a base64 salt.
  If the key is valid, a license file is created automatically and stored in the license directory.
- Without a valid license, the program will not run any features.

  Note: The admin also has a separate script (license.sh) for generating keys and license files.

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6. Troubleshooting

“faculty.html not found”

- Run scraping again: ./web-scraper.sh

“No names.txt found”

- Scrape + parse before selecting the automatic creation of users.

User creation fails

- Ensure you are running the program with sudo:

```
sudo bash ./interface.sh
```

License error

- Verify that:
  - You entered the correct 16-digit key.
  - That there is a license.dat file in path “etc/csc_user_mgmt”

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7. Summary

- This project automates:
  - Retrieving faculty names
  - Cleaning name data
  - Generating credentials
  - Creating Ubuntu system users
  - Enforcing license validation
- The scripts are modular and can be run individually or through the main menu. The system reduces manual account creation time and demonstrates core DevOps automation principles.