Email Validator Activity

Minor Project Report

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# 1. Introduction

This project involves validating email addresses based on specific structure and formatting rules. Email validation is a common requirement in web and desktop applications to ensure users provide a correctly formatted address.

# 2. Objective

The objective of this project is to:  
- Identify valid and invalid email addresses.  
- Apply complex rules using Python.  
- Build a GUI application for real-time email validation.

# 3. Tools Used

- Python 3.10.11  
- Tkinter (for GUI)  
- PyCharm (IDE)  
- Regex and ipaddress modules

# 4. Project Overview

Users enter multiple email addresses in the GUI. The system processes each email based on a set of 25+ rules (from the provided document). Validation results are shown in the GUI with explanations.

Some Rules Implemented:

- Must contain exactly one '@'  
- Local part rules (e.g., length, characters)  
- Domain part rules (e.g., contains '.', valid TLD)  
- No consecutive dots, no underscores in domain  
- Supports IPv4 addresses like [123.123.123.123]

# 5. Screenshots

(Paste the following screenshots here):  
- GUI interface (empty)  
- GUI after entering some email addresses and clicking 'Validate'  
- Output showing both valid and invalid results

# 6. Code Explanation (Short Summary)

The application uses:  
- Regex to check format of local and domain parts.  
- ipaddress module to validate IPv4 domains.  
- Tkinter to allow user interaction with a graphical interface.  
- The final result is shown in a scrolling text box.

# 7. Conclusion

This project helped understand string handling, GUI development, and input validation in Python. It’s a practical example of how logic and UI can be combined to create a useful tool.

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