PyGGI Tool Demonstration Presentation

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Introduction

- PyGGI (Python General Framework for Genetic Improvement) is an automated program repair (APR) tool.
- Provides a flexible framework for applying genetic improvement techniques to software code.

Motivation

- Lightweight and flexible Python-based APR tool.
- Supports multiple programming languages.
- Useful for research and real-world applications in program repair.

Key Features

- Modular framework for genetic improvement
- Supports multi-language modifications
- By default, it has built-in support for: Python, Java, C, JavaScript
- Easy-to-use API for program transformation
- Enables automatic bug fixing and software optimization

Installation & Setup

Clone the Repository: *git clone https://github.com/coinse/pyggi.git*

Install prerequisites:

Pip install pytest

python setup.py install

Program setup convention

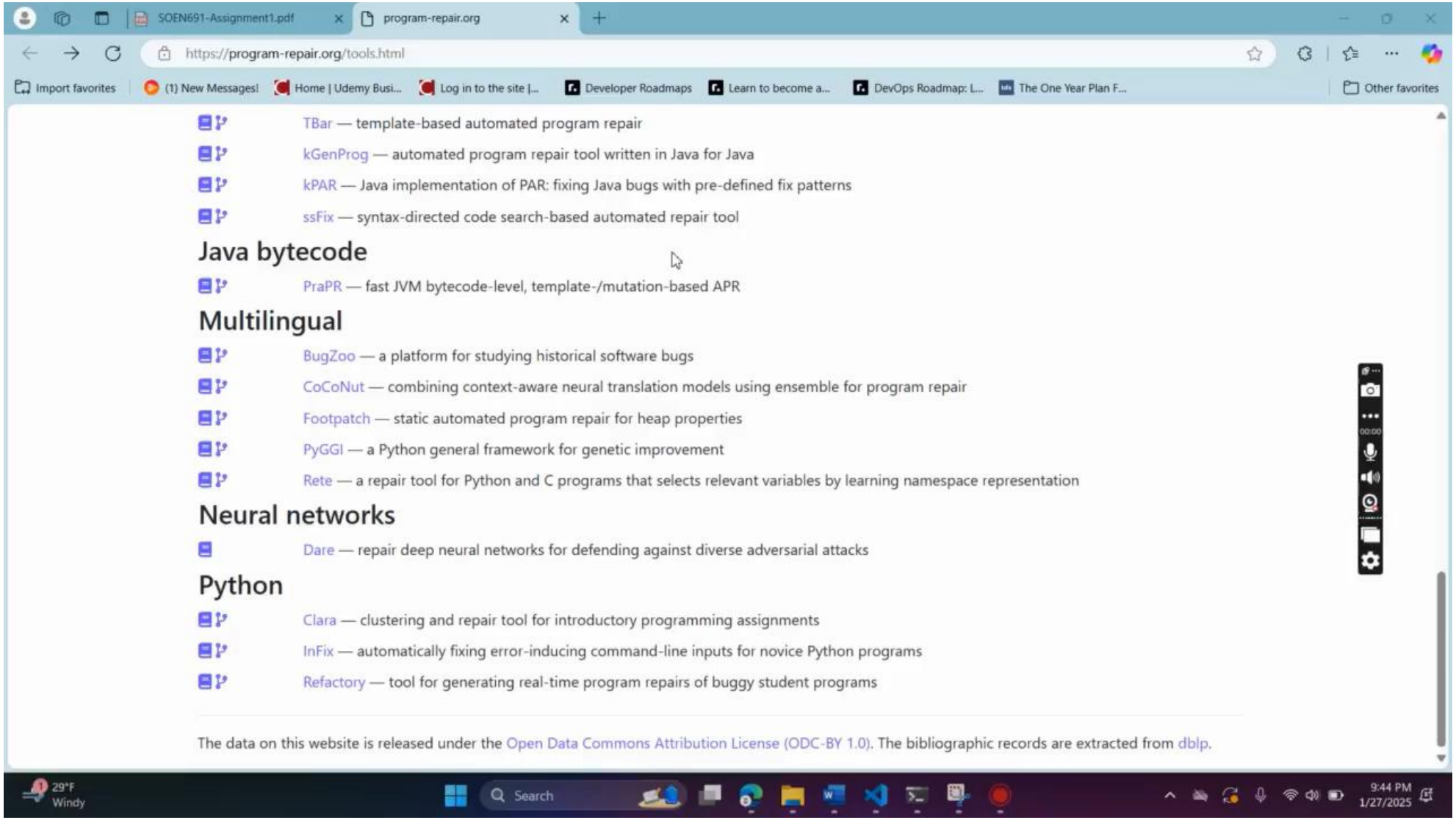
To run PyGGI, these files should be provided in the target directory:

1. Configuration File (.pyggi.config)
2. Test Script

PyGGI Workflow

- Input – Test script, config file
- Patch Generation - By applying mutation operators
- Patch Evaluation - Patch is evaluated using a fitness function
- Iterative Refinement - search-based algorithm

Demonstration



Conclusion

- PyGGI is a flexible and powerful tool for automated program repair.
- Enables mutation-based code improvement with ease.
- Useful for research and practical software maintenance.