Lab 5 - Name - Binding - Scope

Course: Principles of Programming Languages (Code: IT092IU)

HCMIU-CSE, Summer 2024

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1 Exercises

Exercise 1. Write a program to demonstrate the difference between static and dynamic binding.

Hint:

- Define a function that uses a variable.
- Show how the variable's value can be different depending on whether static or dynamic binding is used.
- Show the output and explain the behavior.

Exercise 2. Write functions where inner functions use variables from outer functions. Show how the lookup of variables differs in static and dynamic scoping. Analyze the differences and discuss the advantages of each scoping mechanism.

Exercise 3. Write a program to demonstrate scope and name resolution in nested blocks.

Hint:

- Define variables in nested functions or blocks.
- Modify variables in inner blocks and observe their visibility and impact in outer blocks.
- Show the output and explain how Python's scope rules affect name resolution.

P/s: name resolution: the process by which a language determines the value associated with a variable (or identifier) when it is referenced.

Exercise 4. Create a system where user settings (*e.g.* theme color, font size) can be defined globally, and individual users can override these settings locally.

Hint:

- Define global settings for the application.
- Allow each user to have their own local settings that can override the global ones.
- Write a function to resolve the final settings for each user based on the combination of global and local settings.
- Discuss how name resolution and scope determine the final settings.