

# LEARN MATE:

## INTERACTIVE AI LEARNING COMPANION

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# INTRODUCTION

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## Slide 1: Introduction

LearnMate: AI technology serves as a tool to teach Python concepts to students.

LearnMate implements three main functions which include personalizing exercises while providing adaptive feedback and tracking progress through each session.

This application exists as a product of ITAI2376 Capstone Project.

# SYSTEM OVERVIEW

Modular agent architecture

Components:

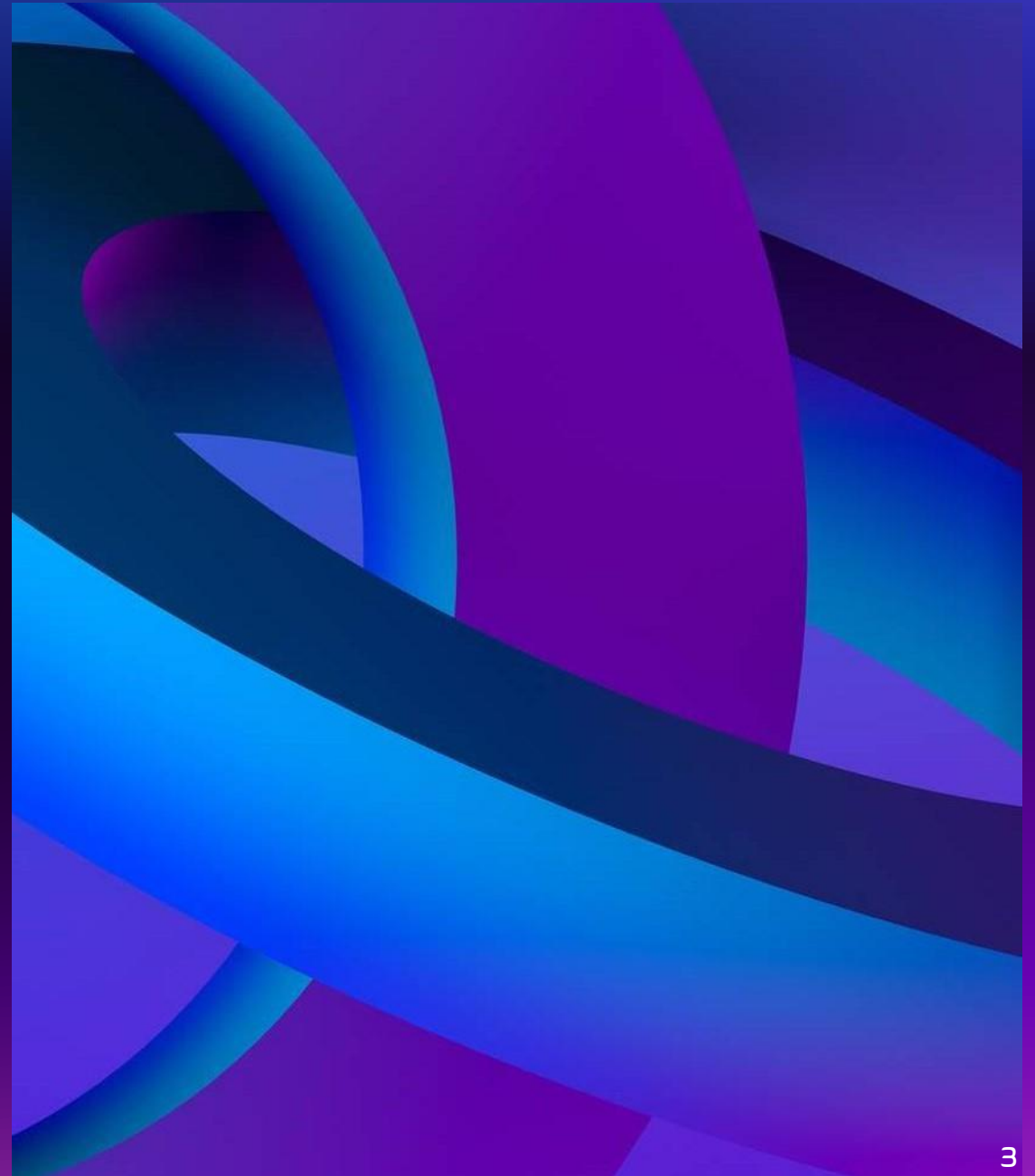
Input processing

Memory for tracking user progress

Reasoning engine for adapting difficulty

The output module works together with an exercise generator and feedback generator component.

The system uses Python execution tools alongside reward tracking mechanisms.



# DEMO 1 – STARTING A SESSION

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The system welcomes a user to begin their first session of beginner-level Python learning activities.

The system at LearnMate produces basic exercises which include variable declaration and data type instruction.

Provides hints upon request

## DEMO 2- SUBMITTING AN ANSWER

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User submits answer to exercise

LearnMate evaluates the solution

Gives immediate feedback:

Correct → explanation and reward

When students provide an incorrect response LearnMate presents detailed feedback alongside an option to retry the exercise.

# DEMO 3- ADAPTIVE LEARNING

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Tracks user progress

Adjusts difficulty level over time

Example: The application starts with basic assignments before introducing intermediate lessons which include loops and conditionals.



## SAFETY & LIMITS

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Input validation

The system implements boundaries through rejecting unsupported order inputs.

The system protects learners while helping them navigate a guided education journey.



# CLOSING REMARKS

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LearnMate demonstrates:

Personalized learning

Adaptive feedback

Progress tracking



# THANK YOU

The background features a gradient from deep purple on the left to dark blue on the right. On the right side, there are several concentric circles of varying radii, some of which are partially visible. A prominent white arc is visible in the lower right quadrant. There are also several small white dots scattered across the background.

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