# README - Probability Calculation Tools

## Overview

This repository contains Python scripts designed for educational purposes to demonstrate and calculate probabilities using statistical methods and numerical integration. The scripts are part of a learning project to understand and apply statistical concepts in programming.

## Files

### 1. `HW3b.py`

- \*\*Description\*\*: This script calculates the probability of a given z-score under the t-distribution using the Simpson's Rule for numerical integration. The program prompts the user to enter degrees of freedom and z-values, calculates the corresponding probabilities, and offers an option to restart the calculations with new parameters or exit the program.

- \*\*Key Features\*\*:

- Calculation of t-distribution probability density function.

- Numerical integration using Simpson's Rule.

- User interaction for input and control flow (restart or exit options).

### 2. `Cheat Sheet for Comparison.py`

- \*\*Description\*\*: This file is designed as a quick reference or cheat sheet for comparing various statistical distributions, numerical methods, or other related concepts (assuming based on the title, as content details were not discussed). It likely includes functions or reference material for educational use.

- \*\*Key Features\*\*:

- Presumably contains comparisons or explanations of statistical concepts.

- Functions or examples demonstrating the application of statistical methods.

## Acknowledgements

The development of these scripts was assisted by OpenAI's ChatGPT, a conversational AI model. ChatGPT provided guidance, code examples, and explanations to help understand and implement the statistical calculations and programming techniques used in these projects. This collaboration enhanced the learning process and the effectiveness of the tools developed.

## Usage

To use the scripts, ensure you have Python installed on your system. Run each script via the command line or an IDE that supports Python. Follow the on-screen prompts to enter required information or perform calculations.

## Contributions

Feedback and contributions to these scripts are welcome. If you have suggestions for improvement or have found a bug, please open an issue or submit a pull request.