AlgoSenpai Adventures - User Guide

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1. Introduction

AlgoSenpai Adventures (ASA) is for students taking CS2040 or any similar data structures and algorithms module who want to reinforce their understanding of the topics in a fast and engaging way, rather than through rote memorisation. More importantly, AB4 is optimized for those who prefer to work with a Command Line Interface (CLI) while still having the benefits of a Graphical User Interface (GUI). If you can type fast, ASA can be a more time-efficient solution to practice your understanding as compared to VisuAlgo (which uses clicking). Interested? Jump to the Section 2, "Quick Start" to get started. Enjoy!

2. Quick Start

1. Ensure you have Java `11` or above installed in your Computer.

2. Download the latest `AlgoSenpaiAdventures.jar` here.

3. Copy the file to the folder you want to use as the home folder for the application.

4. Double-click the file to start the app. The GUI should appear in a few seconds.

5. A `UserData.txt` file will be automatically created in the folder of the application the first time you start it.

Hello Mr. Matthew!

You are Level 1

select linkedlist

You have selected Chapter 2

quiz

Consider the Singly Linked List of size 5 below.
It undergoes an insertion of value 10 at the head.
What would be the new sequence of integers?
[34] -> [89] -> [41] -> [91] -> [46]

Your answer:

Send

6. Type the command in the command box and press `Enter` to execute it.
   e.g. typing `menu` and pressing `Enter` will list out all the commands that are recognised in the program.

7. Some example commands you can try:
   - `menu` : lists all the commands supported in the program.

- **select**linkedlist : selects Chapter 2 (Linked List) to be included in the game.
    - **exit** : exits the app
8. Refer to Section 3, "Features" for details of each command.

3. Features

> **Command Format**
>
> - Words in `UPPER_CASE` are the parameters to be supplied by the user e.g. in `select CHAPTER`, `CHAPTER` is a parameter which can be used as `select Sorting`.

3.1. Set up user profile or load previous user data : `hello`

This command is to be executed when you open the program. If it is your first time opening it, you will need to set up your user profile by entering the hello command in the format `hello NAME GENDER`. It will then customise the user interface to your data and save the information in the UserData.txt.

If it is not your first time opening the program, you can load your previous user profile by typing `hello` and the user interface. Format: `hello` or `hello NAME GENDER`

Example:

`hello Matthew boy` will mean that the program will save my name as Matthew and my gender as boy.

3.2. View all the commands available : `menu`

This command is for new users, users who are still learning the console commands, or have forgotten a particular command. `menu` will list all the commands that are available in the program. Format: `menu`

3.3. Start the quiz : `quiz`

This command allows you to start the quiz. You will need to specify which Chapter you want to play using the `select` command first. If not, you will be prompted to do so by the program. Format: `quiz`

3.4. Entering a quiz answer : `quiz ANSWER`

This command can only be used when you are playing the quiz itself. Format: `quiz ANSWER`

Example:

`quiz 60, 40, 30` will mean that you want to enter the answer `60, 40, 30` for the current question in the quiz.

`quiz 2` will mean that you want to enter the answer `2` for the current question in the quiz.

3.5. Return to the previous question : `quiz back`

This command allows users to return to the previous question if you made a mistake. This would help prevent any accidental input, rendering the answer as wrong. This command only works during the quiz.

Format : `quiz back`

3.6. Skip to the next question : `quiz next`

This command allows you to skip to the next question if you would like. This command only works during the quiz.

Format : `quiz next`

3.7. Skip to the next question : `quiz end`

This command allows you to exit the quiz abruptly if you would like. It will still give you a quiz score based on the answers you have entered. This command only works during the quiz.

Format : `quiz end`

3.8. Choose a chapter : `select`

This command allows you to choose the chapter of the game to be run. The CHAPTERS that are available to be selected in the program are `sorting`, `linkedlist` and `bitmask`.

Format: `select CHAPTER`

Example :

`select sorting` will select the chapter on Sorting for the quiz.

3.9. List results of a chapter : `result`

This command will generate a comprehensive summary of the previous quiz that you attempted. You will be able to see where you went wrong in your previous quiz so you can improve in your next attempt.

Format : `result`

3.10. List previously entered commands : `history`

This command provides a list of commands you have entered. This would be useful in the event if some console command has changed the your result but you has forgotten what commands you have entered.

Format : `history NUMBER`

Example :

`history 5` will print the last 5 console commands given.

3.11. Delete chat bubbles in the chatbox : `undo`

This command allows users to delete the previous chat bubbles in the chat. If `NUMBER` is not specified, the number of messages removes from chat is default to 1.

Format : `undo NUMBER`

Example:

`undo 2` will delete 2 chat bubbles.

3.12. Clear the chatbox : `clear`

This command removes all existing conversations in the chat if you deem the interface to be too cluttered with information

Format : `clear`

3.13. Provides suggestions to users to improve : `help`

This command provides a suggestion of problems that you can solve to improve at a particular chapter.

Format : `help CHAPTER`

Example :

`help sorting` will list a few problems from Kattis that the user can attempt to increase their understanding of the chapter selected.

3.14. Change the volume of the background music : `volume`

This command adjust the volume. Specify a number between 0 to 10 adjust the sound level with 10 the maximum loudness.

Format: `volume NUMBER`

Example:

`volume 1` will set the volume to level 1.

3.15. Print questions or user information : `print`

This command provides a way for you to print the questions you have experienced in a text file. This is for users who want to keep a copy of the questions they found hard, or attempted wrongly. Specify `user`, `archive`, or `quiz` to the second argument to print the data in the user, archive, or quiz respectively. Specify the filename with the extension `.pdf` as the third argument to print the data to PDF

Format : `print DATA_SOURCE FILENAME`

Example:

`print user MyData` will print the UserData (His name, gender, level, exp, chapter information) into a pdf named MyData.

3.16. Archive questions : `archive`

This command archives the specified question. Specifying the question number archived the question in the last attempted quiz. This is for users who found a particular question interesting, or users who are not sure of the correct answer and wish to review the question in greater detail in the future.
Format: `archive NUMBER`
Example:
`archive 1` archives question 1 in the quiz to a pdf file.

3.17. Manually save the game : `save [coming in v1.4]`

This command provides a way for you to save the game manually. Normally, the game would already be saving your game for you at certain checkpoints. However, in the event that our auto-save function does not work, it is highly recommended to do a manual save from time to time.
Format : `save`

3.18. Reset the whole game : `reset [coming in v1.4]`

This command provides a way for you to restart the entire game by clearing all progress and results. This is for users who wish to repeat the game after clearing all the stages.
Format : `reset`

3.19. Exits the game : `exit`

This command provides a way for you to terminate the game.
Format : `exit`

4. FAQ

Q: Does my game auto-save for me or do I have to manually save it?
A: The game will try to save an instance for you automatically after certain checkpoints. However, in some unforeseen circumstances, the program might terminate midway, causing your progress to not be saved. As such, we recommend users to do a manual save occasionally as well.

Q: How do I maximise my learning potential with the report that I have generated?
A: The report generated will give a good indication on the chapters that you are weak at, based on the time taken to solve the questions, as well as the number of question you gotten correct. As such, more effort can be placed into practicing the chapters which are deemed "weak" by the reports as it indicates a lack of conceptual understanding.

Q: Is there a time limit to the questions given?
A: There is a time limit for each question, but it is gradual. Users are expected to improve with more practice and as such they should be able to answer questions within the stipulated time. Questions at the beginning are generally given more time than questions towards the ending of the chapter.

Q: I made an accidental mistake in my answer for the previous question. Is there a way for me to undo it?

A: Yes. You can enter the command `back` to redo the last question.

Q: What is the difference between `undo` and `back`?

A: `undo` will reverse the decision made by the user while `back` simply returns to the previous question. `undo` will not reverse any answer input given by the user, but rather any other console commands given.

Q: How can I keep a copy of the questions?

A: You can either archive the questions in the game with the command `archive` or print the questions into PDF with the command `print`.

Q: Will the questions in each quiz be repeated?

A: Each question will be phrased the same; however, the list of numbers for the question are randomly generated.

Q: Can I challenge friends in a multiplayer mode?

A: Unfortunately, you can't. However, you still can share your scores with your friends through email.

Q: Are there automatic software updates?

A: There is no automatic software updates. To get the updates, you need to redownload the latest version of the software.

5. Command Summary

- **hello** `hello`

- **menu** : `menu`

- **quiz** : `quiz`

- **quiz ANSWER** : `quiz ANSWER`

- **quiz BACK** : `quiz back`

- **quiz NEXT** : `quiz next`

- **quiz END** : `quiz end`

- **select** : `select CHAPTER`
  e.g. `select sorting`

- **result** : `result`

- **history** : `history NUMBER`
  e.g. `history 5`

- **Undo** : `undo NUMBER`
  e.g. `undo 1`

- **Clear** : `clear`

- **Help** : `help CHAPTER`
  e.g. `help sorting`

- **Volume** : `volume LEVEL_NUMBER`
  e.g. `volume 1`

- **Print** : `print DATA_SOURCE FILENAME`
  e.g `print user MyData`

- **Archive** : `archive QUESTION_NUMBER`
  e.g. `archive 1`

- **Save** : `save`

- **Reset** : `reset`

- **Exit** : `exit`

- **Volume** : `volume LEVEL_NUMBER`
  e.g. `volume 1`

- **Print** : `print DATA_SOURCE FILENAME`
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