

Algorithmic Atlas

User Documentation

Group 8A

Data Structures Learning Software
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Introduction

Ever found textbooks for data structures and algorithms just plain old boring? They just contain lines and lines of information, which makes for a pretty uninteresting long read. But what if learning these crucial concepts could be engaging, interactive, and dare I say it, fun? Introducing our revolutionary software for learning Data Structures and Algorithms- Algorithmic Atlas! Say goodbye to dull textbooks and hello to dynamic learning experiences that turn learning into an adventure. With hands-on practice, real-time feedback, and engaging challenges, mastering DSA has never been more exciting! Whether you're a beginner or looking to brush up your skills, our software provides a captivating journey through the world of data structures and algorithms. Don't settle for boring textbooks – embark on a learning adventure with our interactive DSA software today!

This application is a 'data structures learning software' designed to teach students the fundamental concepts of data structures through step-by-step explanations, interactive modules, and engaging graphics. Inputs in all interactive exercises are restricted to be numerical and in the range of -1000 to 1000. Indices and sizes of data structures shall not exceed 10 since it is only for understanding purposes.

Getting Started

- 1) Open the project directory in Visual Studio 2010.
- 2) Press the `Run` button in the toolbar at the top, or press F5.
- 3) The software starts running. Create an account and enter the desired inputs.

How to use

- Login/Sign up: Enter your username, email and password to login to the software. If you do not have an account, click the link at the bottom of the page to go to sign up page. Then enter your details and create an account.
- You can select the topic of your choice from the available modules and start learning instantly! Each module will display whether you've covered the content or not with a tick mark in the corner. Overall progress is also displayed at the top, depending on your performance in the quizzes.
- Once you've selected a topic, read through the content and enhance your understanding with the interactive exercises. The interactive exercises require you to enter inputs and display outputs accordingly. Go ahead and experiment with a variety of cases and improve your proficiency in data structures!

- When you're ready to test yourself, click the 'Take Quiz' button. Each topic has its own quiz consisting of 10 MCQ questions with single answer correct. Select your choice and press the 'Next' button, to submit and see whether your answer is correct. Your score will be displayed at the end of the test and your overall progress will also be updated.

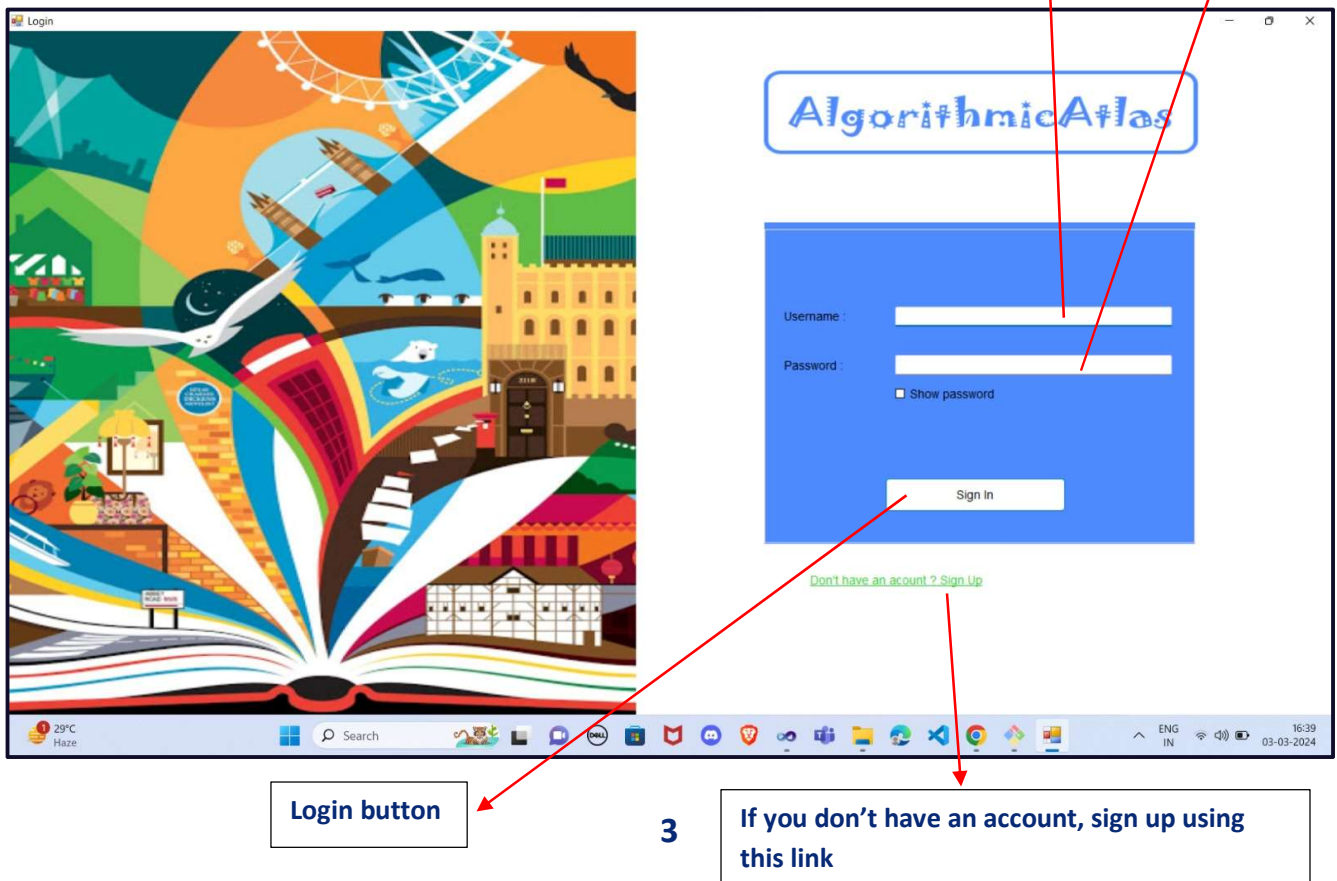
Error Handling

Error handling has also been included, which covers the following cases:

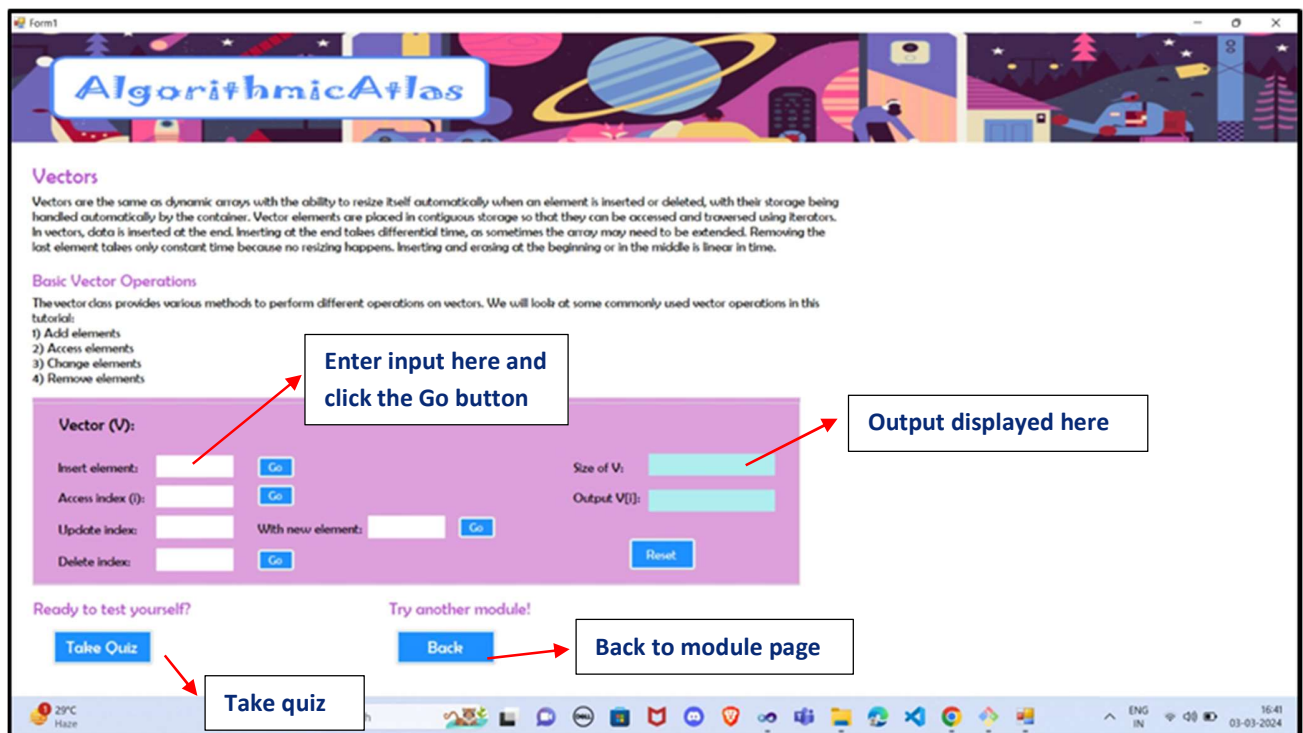
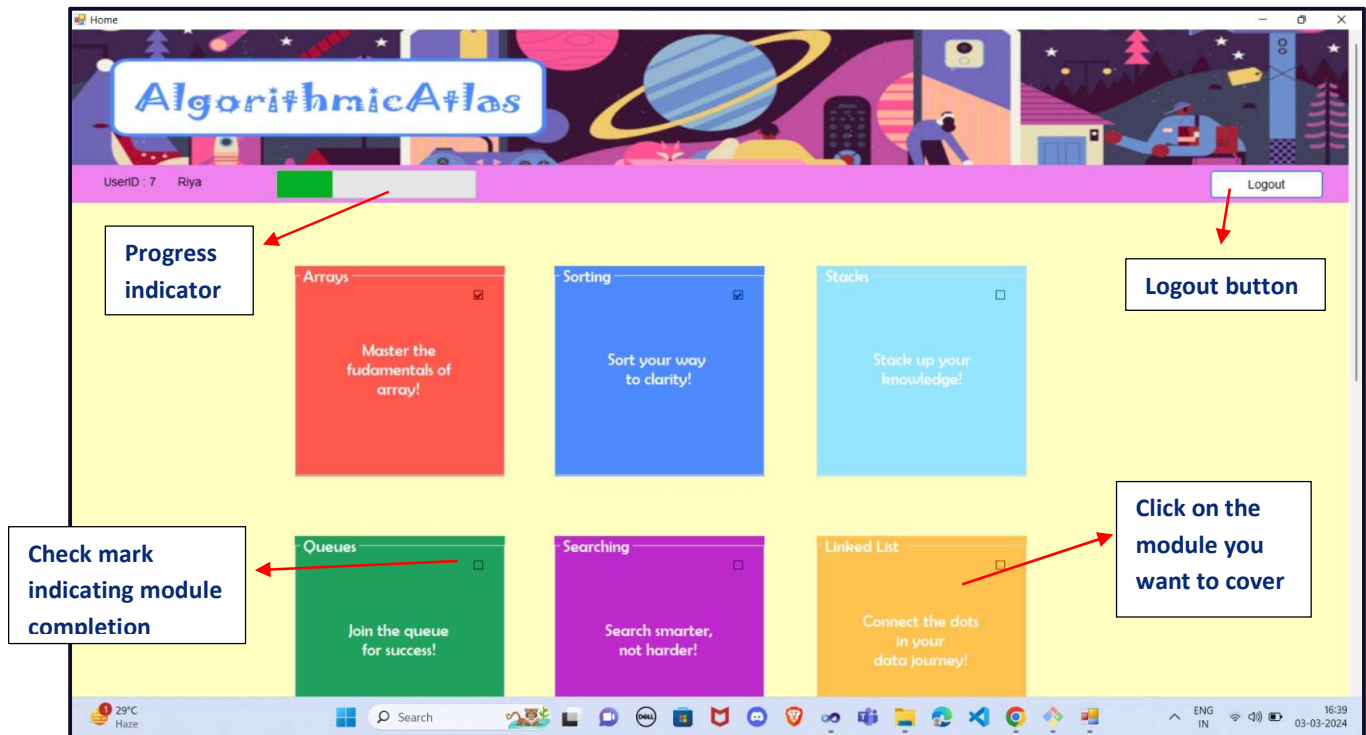
- 1) **Out of range**: If any of the numbers entered, whether numerical or index-based, is outside the above-mentioned range, this error is displayed. Also, if after performing the calculation the result is beyond the range, this error is displayed.
- 2) **Invalid input**: If the entered input is not in numeric format or there is a syntax error, this error is displayed. Eg: 12.3.53, abcdef etc.
- 3) **Login/authentication errors**: If the user enters wrong user ID or password, or the account does not exist, then the login page displays appropriate error.

User Interface

Enter your username and password in login page:



Select the desired module. Your progress, user ID and username are displayed on top.



Cover the content and make use of the interactive exercises to enhance your understanding!

Once you're ready to test yourself, click the 'Take Quiz' button and the respective topic quiz page will open.

