

USER MANUAL:

Version 1.0.0

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USER MANUAL: STUDENT

1. LOGIN

You can login directly from this page (Figure 1) using your student email address and password. After loading, waiting to be successfully authenticated, you will be redirected to the Main/Home page(Figure 2) of the app. Note the logout button on the top right of the home page, meaning from that point forward, you can logout.

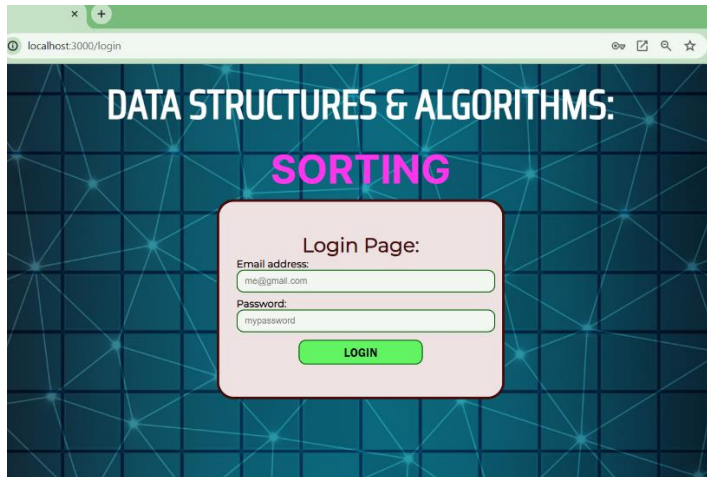


Figure 1: Initial Login Page

2. Main/Home Page

From the main page, you can navigate to the Practice Mode, Visualizer Mode, or Test Mode, by clicking on the respective buttons.

Practice Mode: Brief explanations of the Sorting algorithms included in this application, namely Bubble Sort, Merge Sort and Quick Sort. Included in this mode practice quizzes focused on each individual sorting algorithm, images and pseudocode showing how each algorithm works, and other helpful websites that expand more on the topics.

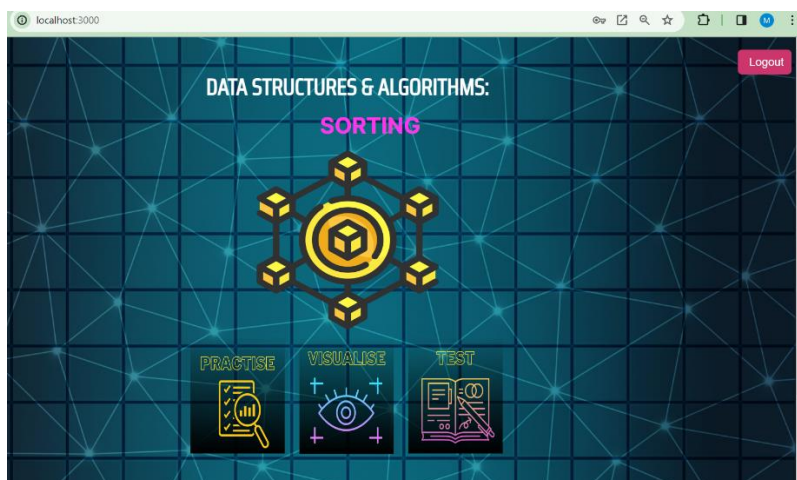


Figure 2: Main/Home Page

2.a) Practice Mode

After clicking on the “Practice” Mode button on the Home Page, you will be redirected to this page, the Main page for all the Sorting algorithms. This includes brief and general information about Sorting algorithms. Marked in red, is the icon to show the side bar.

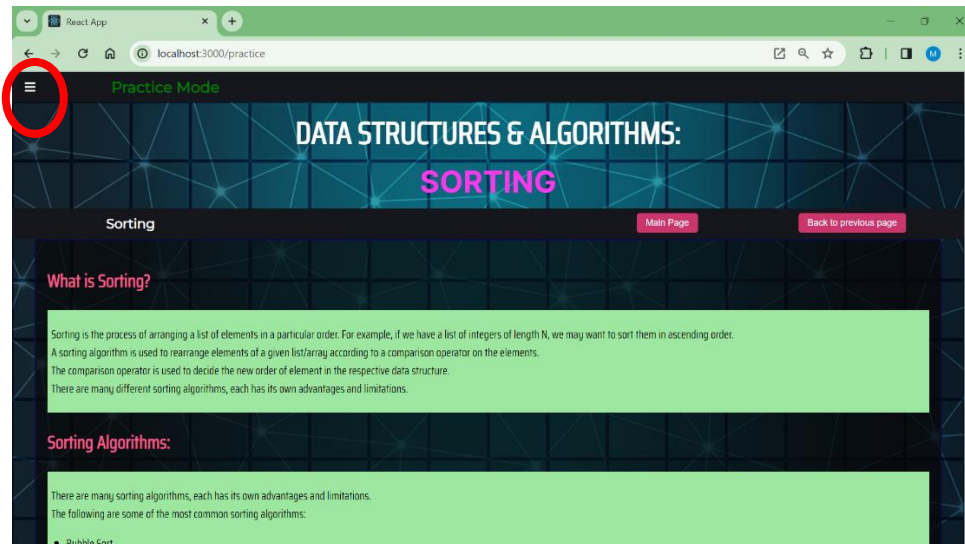
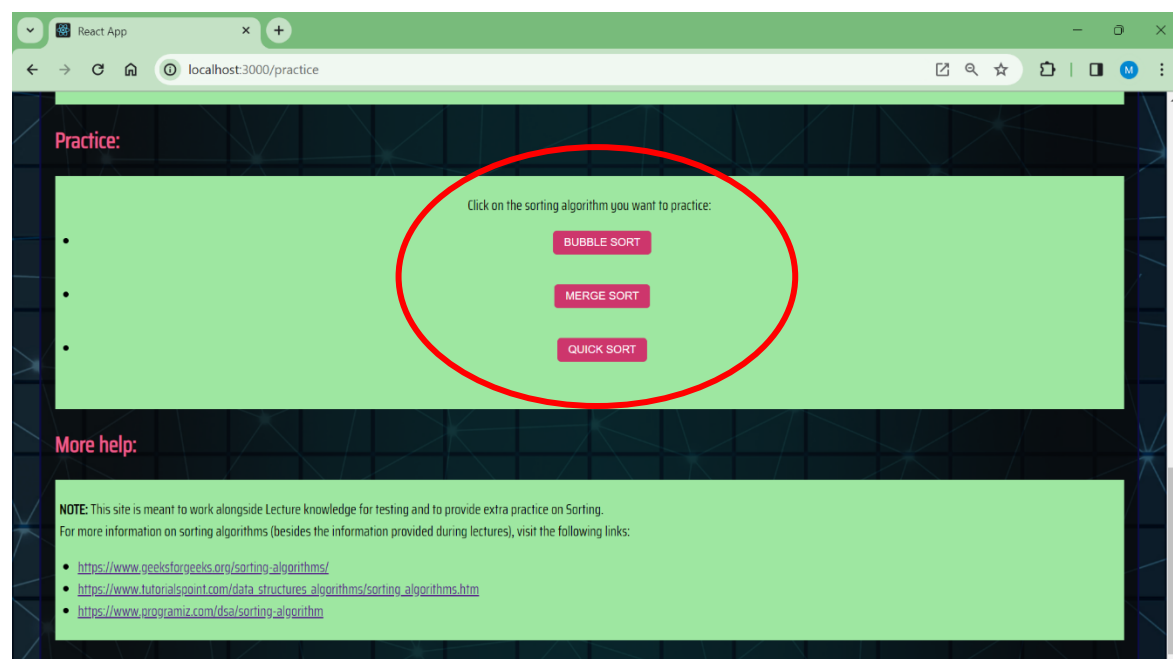


Figure 3: Sorting Algorithms Main Page

Navigate to different sort pages:

Method 1: Scrolling further down on the Sorting Algorithms Main Page, you'll see the 3 buttons encircled, which can be used to navigate to each sort's main page. In the “More help” section, helpful sources/websites are included; helpful sources about each topic are included on every main page.



Method 2: The Sidebar

Sidebar

The side bar can be used to navigate to the different pages included on it.

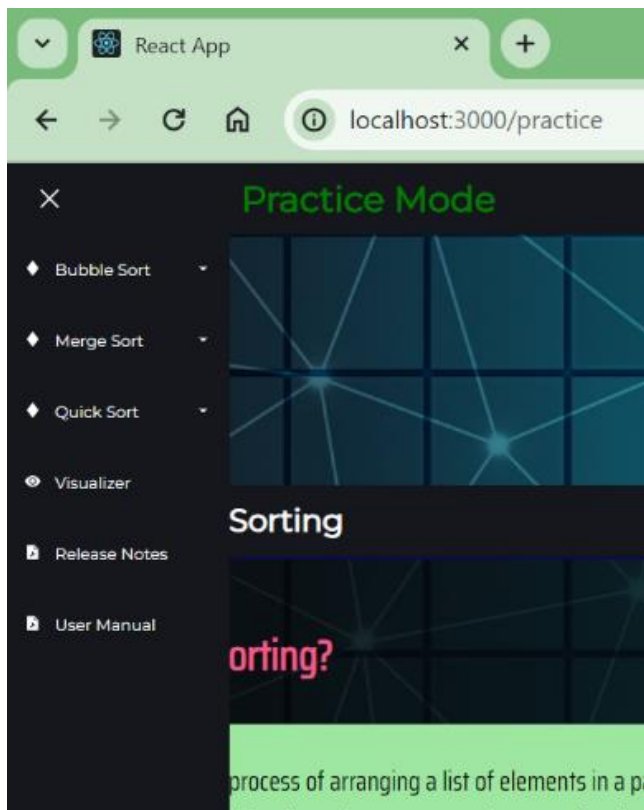
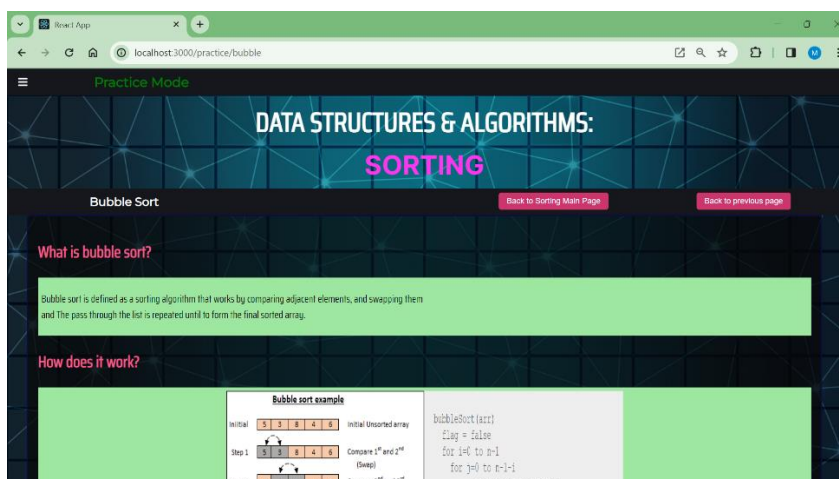


Figure 4: Sidebar

Bubble Sort main page:



Merge Sort main page:

React App

localhost:3000/practice/merge

Back to Sorting Main Page

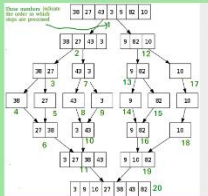
Back to previous page

Merge Sort

What is merge sort?

Merge sort is defined as a sorting algorithm that works by dividing an array into smaller subarrays, sorting each subarray, and then merging the sorted subarrays back together to form the final sorted array.

How does it work?



```
MergeSort(arr, left, right):
  if left > right
    return
  mid = (left+right)/2
  mergeSort(arr, left, mid)
  mergeSort(arr, mid+1, right)
  merge(arr, left, mid, right)
end
```

Quick Sort main page:

React App

localhost:3000/practice/quick

Back to Sorting Main Page

Back to previous page

Quick Sort

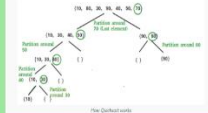
What is Quick sort?

QuickSort is a sorting algorithm based on the **Divide and Conquer** algorithm that picks an element as a pivot and partitions the given array around the picked pivot by placing the pivot in its correct position in the sorted array.

How does it work?

The key process in quickSort is a **partition()**. The target of partition() is to place the pivot (any element can be chosen to be a pivot) at its correct position in the sorted array and put all smaller elements to the left of the pivot, and all greater elements to the right of the pivot.

Partition is done recursively on each side of the pivot after the pivot is placed in its correct position and this finally sorts the array.



```
quickSort(arr, beg, end)
  if (beg < end)
    pivotIndex = partition(arr, beg, end)
    quickSort(arr, beg, pivotIndex)
    quickSort(arr, pivotIndex + 1, end)

  partition(arr, beg, end)
  set end as pivotIndex
  pivotIndex = beg - 1
  for i = beg to end-1
    if arr[i] < pivot
      swap arr[i] and arr[pivotIndex]
      pivotIndex++
  swap pivot and arr[pivotIndex]
  return pivotIndex + 1
```

Accessing Practice Quizzes:

When on the main page of the sort you want to practice, click on the sidebar, and click the down arrow near the name of the sorting algorithm you want to practice. Then click on “Practice Quizzes” and you will be redirected to a page where you can see the list of quizzes for you to attempt.

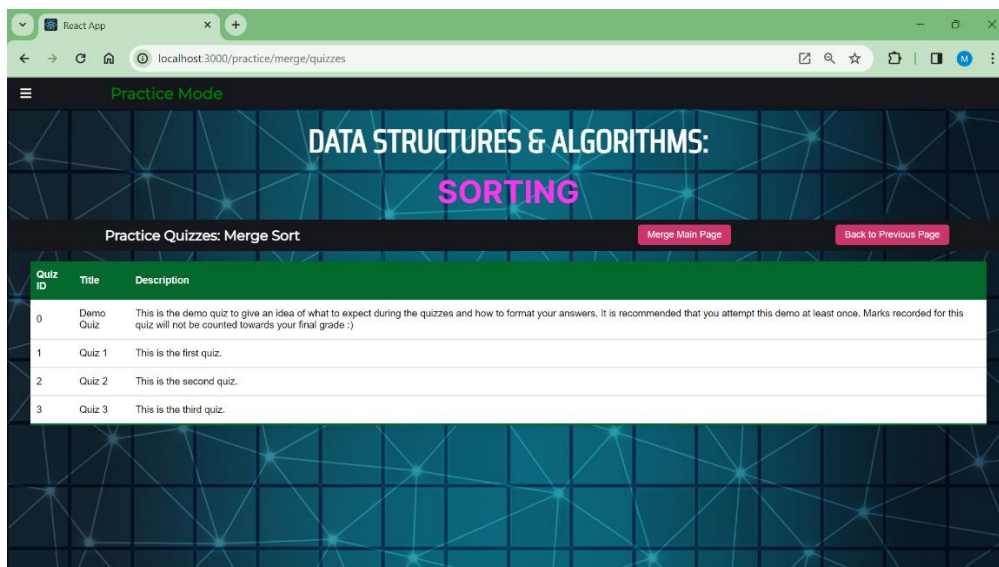
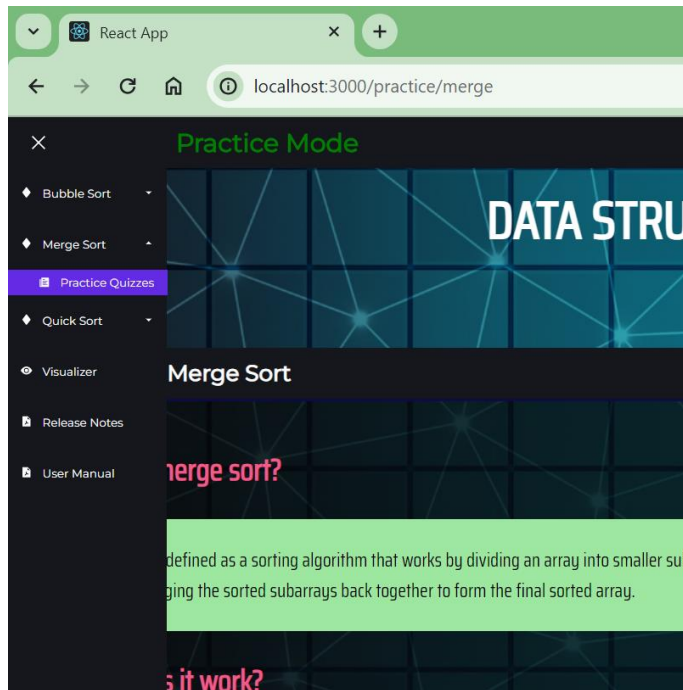
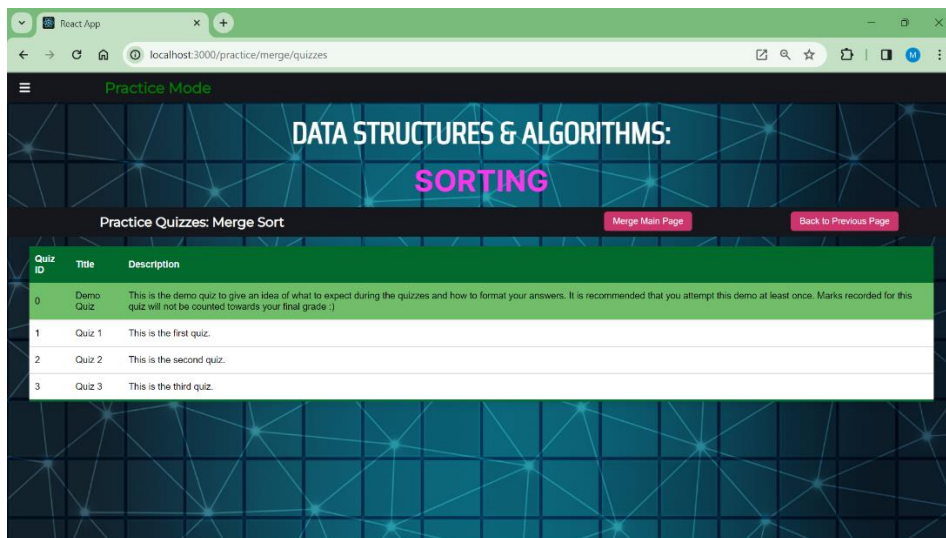


Figure 5:List of Practice Quizzes

Click on the row of the quiz you want to attempt:



Now you can start a quiz:

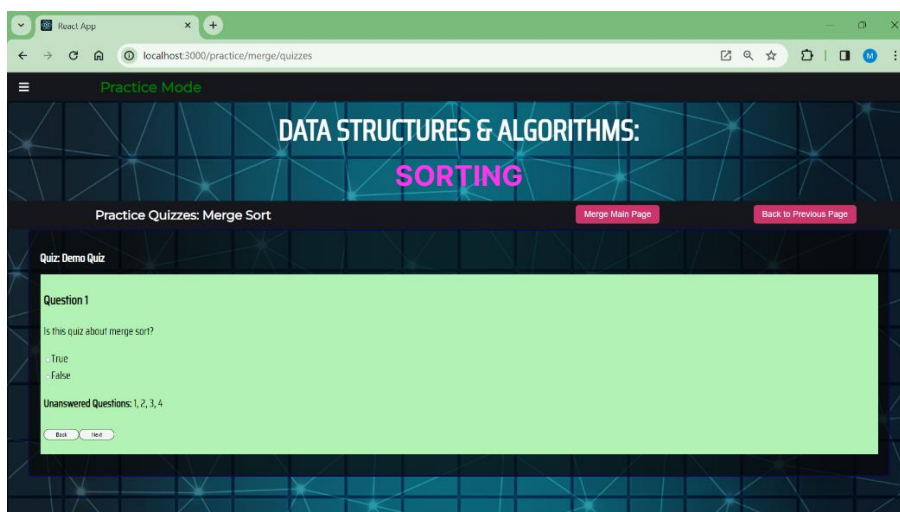
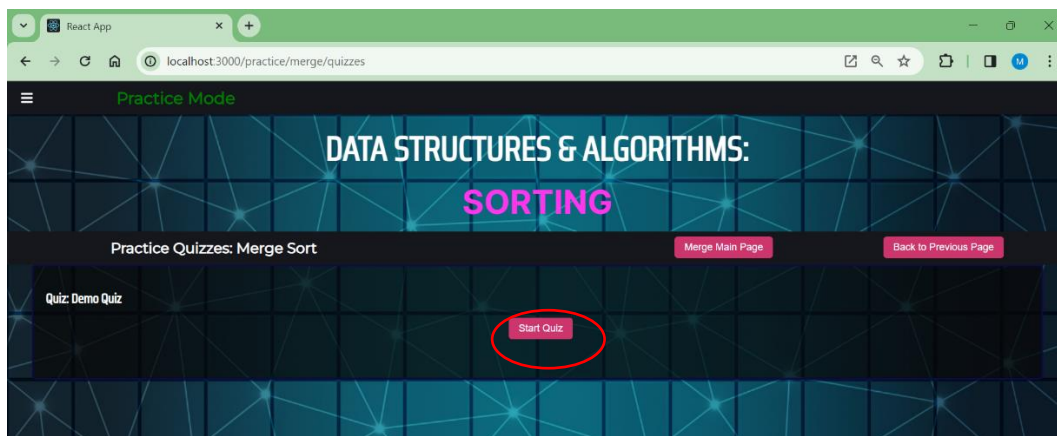


Figure 6: Quiz Example

Submit a quiz using the submit button that shows up at the last question:

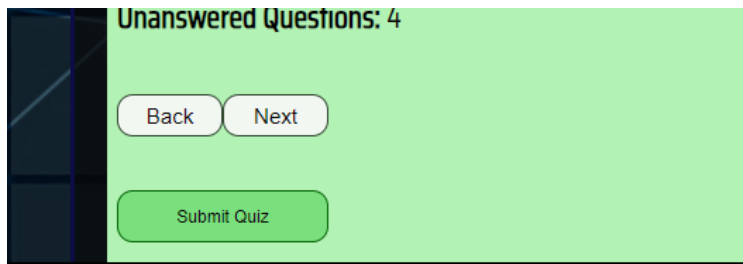
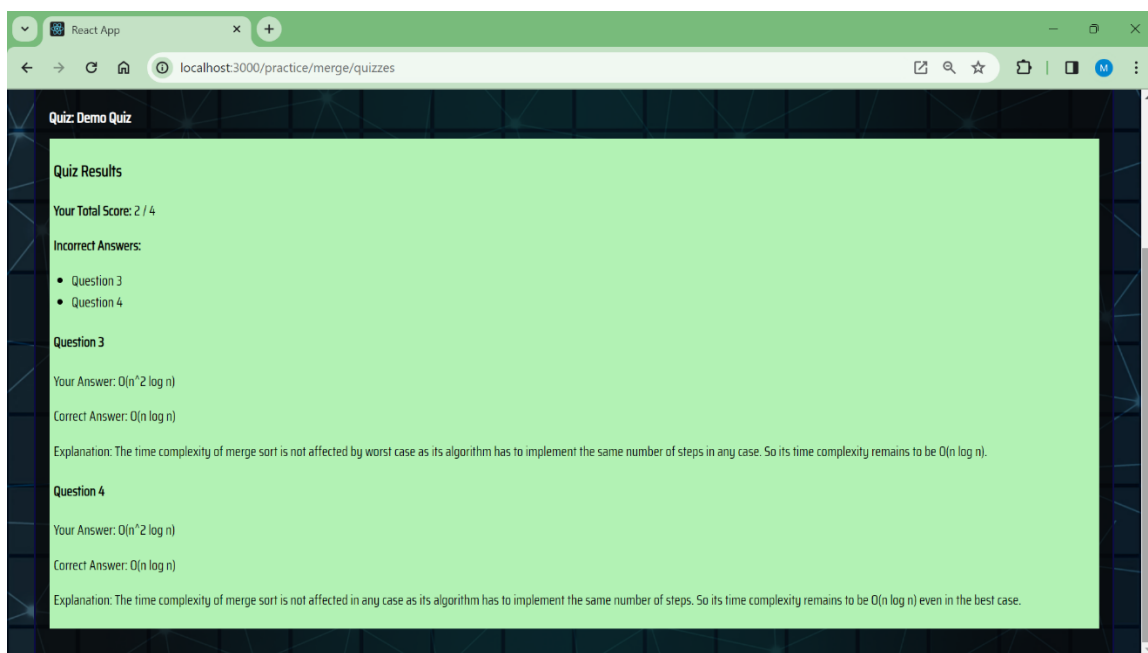


Figure 7: Cropped image, submit button

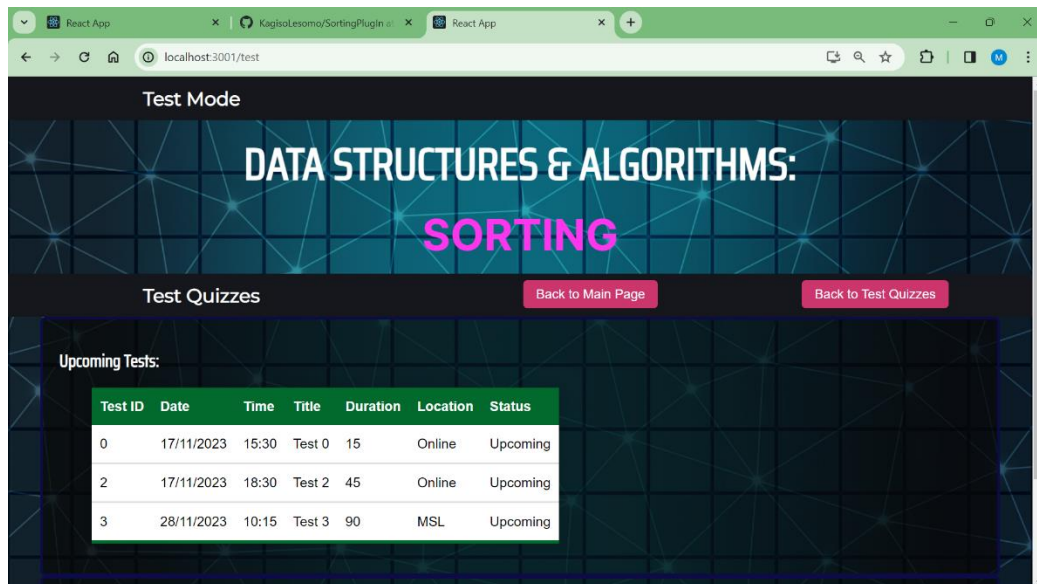
After submitting a quiz, such feedback is given:



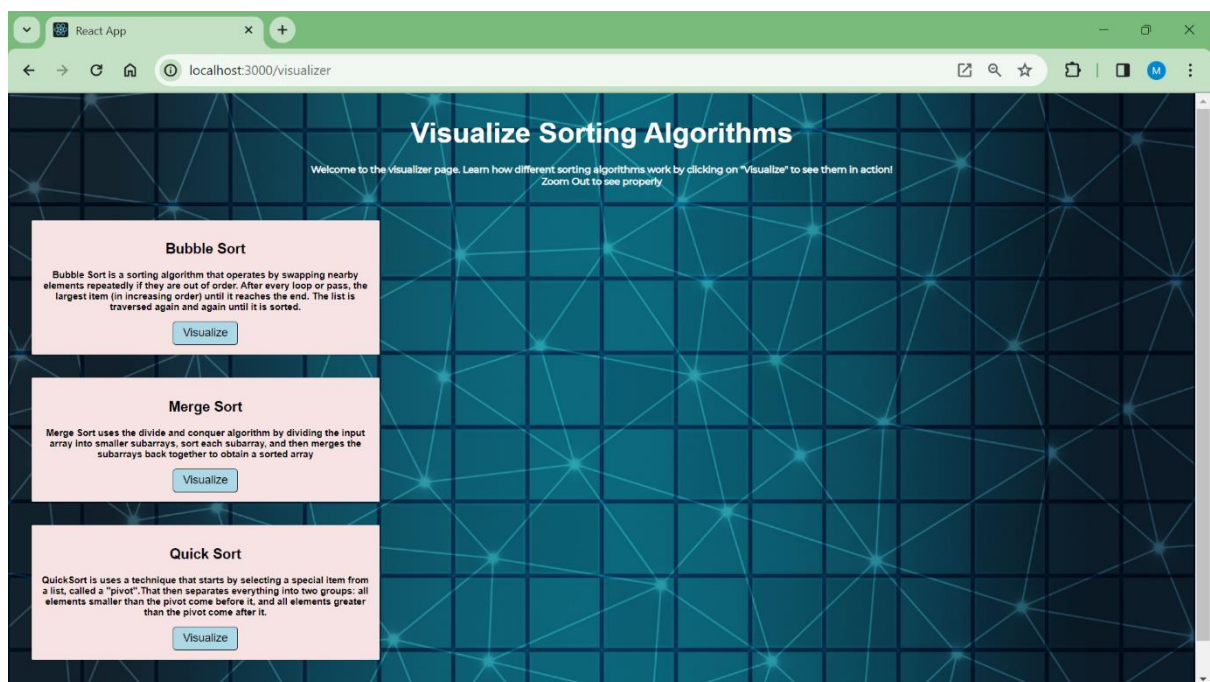
Test Mode

Similar to Practice quizzes, but does not include examples, extra information or helpful websites. This is for you to really test your knowledge. Important to note: The results from taking any of the tests on this mode, are recorded and take part in your overall grade. In practice mode, your marks are not recorded.

Again you can click on the row of the test you need to write, and will be redirected to where you can start the test quiz, similar to starting a practice quiz.



Visualiser Mode:



Admin Manual

An admin has to login from the initial login page shown in Figure one and then they are redirected to their own login page.

Admin Manual Pages:

The image displays two screenshots of a web application interface, likely for an admin panel, running on a browser at localhost:3000/admin.

Top Screenshot: Admin Login Page

The page features a dark blue background with a grid pattern. A central white box contains the "Admin Login:" form. The form includes:

- Email address:
- Password:
- A green "LOGIN" button.
- A small "Back" link below the password field.

Bottom Screenshot: Add Practice Quiz questions to the Database Page

The page features the same dark blue background with a grid pattern. A central white box contains the "Add Practice Quiz questions to the Database" form. The form includes:

- A red "Logout" button in the top right corner.
- Select a Sort Algorithm:
- Quiz ID:
- Enter Quiz Details:
- Question:
- Number of Options:
- Insert Answer Options:
- Insert Answer:
- Explanation:
- A green "Add Quiz" button.