# Arraylist Functionality

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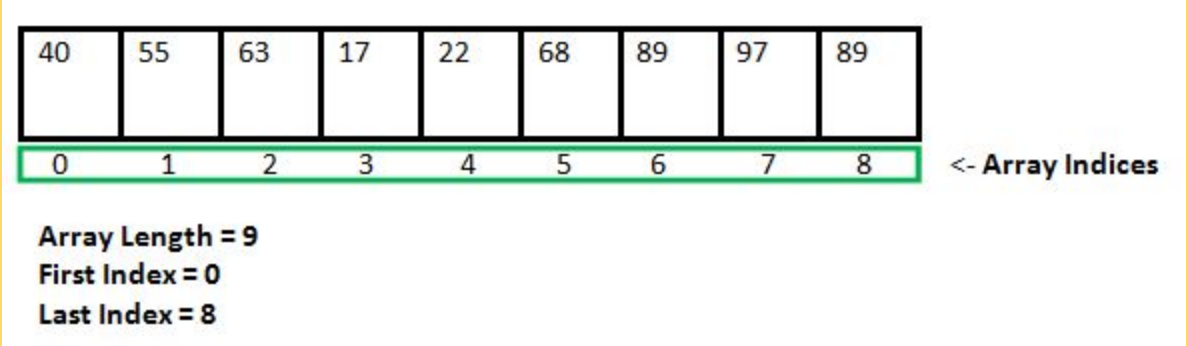
# What is the Project About?

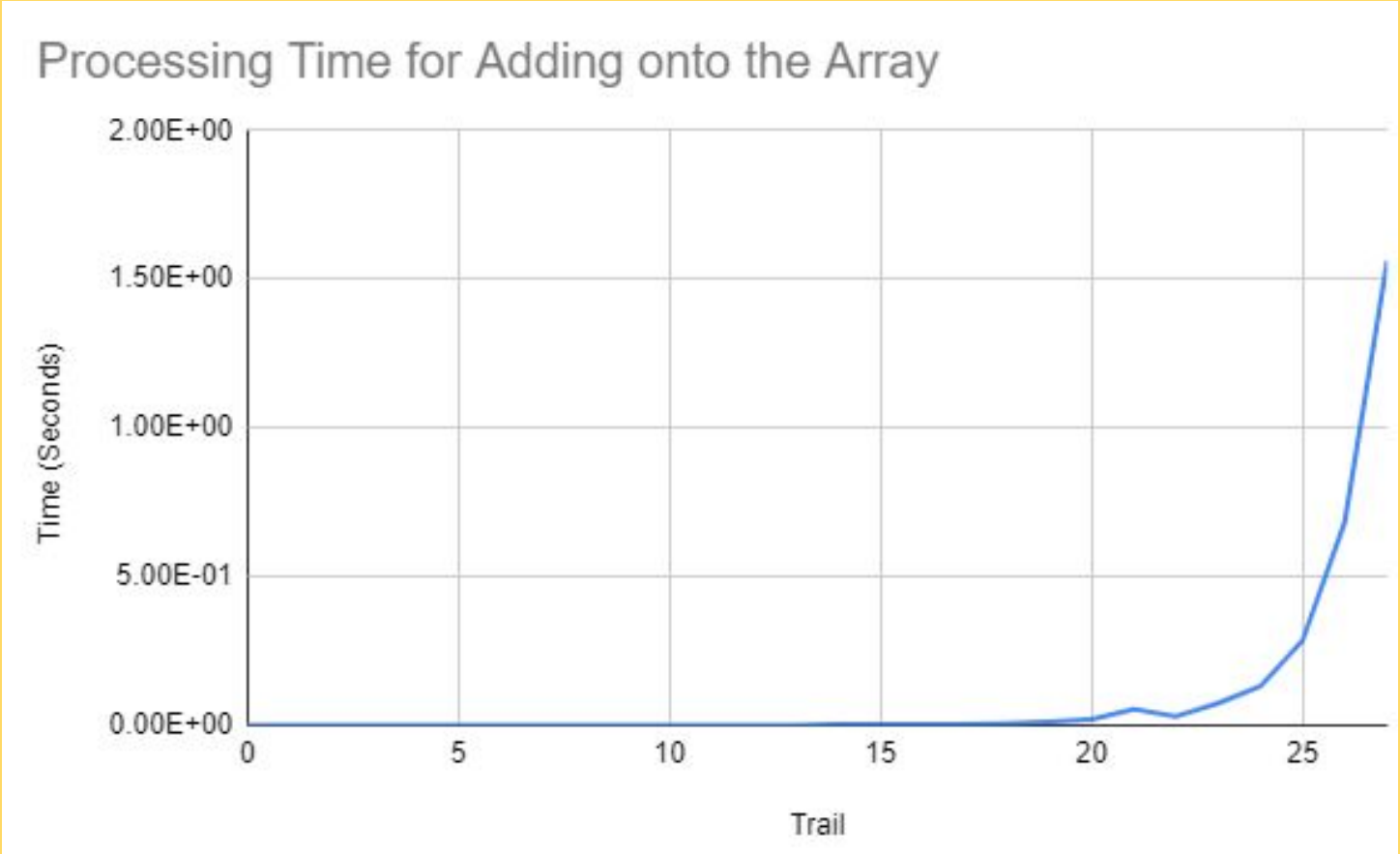
- Arraylist is a tool for easier array management
- It can be used to add and remove elements from the array
- This project tests the speed of Arraylist



# Speed of Adding Numbers

- Each trail has $2^x$ amount of numbers
- x‘s value starts at zero and goes up by one every trail
- The numbers are added to the array one at a time
- The time it takes to add up all the numbers is recorded
- Trails ends either after ten minutes pass or the computer runs out of memory

Trial ended from low computer memory.




Program lasted for 27 trails. Last trail took 1.56 seconds to complete.

# Speed of Deleting Numbers

- This test mimics the same steps as the adding test
- When all the numbers are added a timer starts
- The program will remove the first element; one at a time
- Trails end either when ten minutes pass or the computer runs out of memory

Trail ended after ten minutes.


Program lasted for 19 trails. Last trail took 237.39 seconds to complete.

# Analysis

- Adding was much faster than deleting terms
- All adding trials took less than two seconds
- The deleting trails lasted till the ten minute mark
- The adding trials ended from memory shortage
- The adding trials had eight more trials than the deleting ones

# Conclusion

- The deleting trails took longer because removing the first term was not effective
- When the first is deleted, the size of the array is decreased
- When this happens, all terms are moved back one index value
- This caused the major time difference between the two test
- To be more effective, the last term should be removed instead of the first term.