

## Lab 10: COS 285 (Finale)

### Spring 2023 – April 12

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#### Lab Instruction:

Similar to the previous lab, in this lab, we will continue using GitHub. In this lab, you will practice analyzing the project and divide the tasks yourself.

The team managers are responsible for creating and sharing a GitHub repository with teammates. On top of your solution, share the link and make sure I have access to it (GitHub ID: [AIIRLab](#) and my university email).

**Important note:** by the end of the lab, each student's contribution will be checked. You will be graded based on choosing appropriate data structures for the task.

#### Description:

In this lab, you will implement your Hash Table and Hash Function. Your Hash Table data structure has the following methods and attributes:

- A generic table with an initial size of 500
- Resize method that doubles the size of the table when no slot is free, or at the loading factor of your choice
- Add method that adds each item to the hash table
- Find method, that takes in a key and returns the object if it is found otherwise returns null

There is a list of students with their first names provided in a file for you. First, define a Student class and include a double hashing function as the hashCode method. The calculation of HashValue should be done only once, and hashCode should return the HashValue only after the first call.

#### Deliverables:

After implementing your methods, for each student in your list, call the find method, and calculate the time taken for the search method. Report the average time for all students in your report.