

## HANDSON-9

### DESIGN ANALYSIS AND ALGORITHMS

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#### HashMap Implementation

This repository contains a custom implementation of a hash map using a double-linked list for collision resolution. The hash map dynamically resizes based on the number of elements, ensuring efficient storage and retrieval.

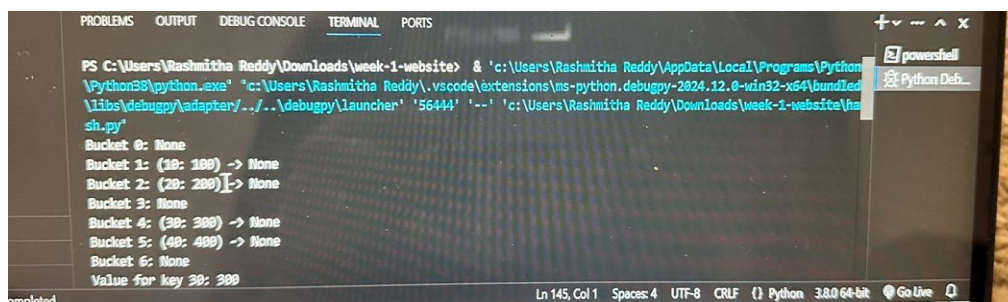
#### Features

- **Dynamic Resizing:** The hash map expands when it reaches 75% capacity and shrinks when it drops below 25%.
- **Collision Resolution:** Uses a double-linked list to handle collisions, allowing for efficient insertion and retrieval.
- **Basic Hash Function:** A simple hash function is provided, but it can be customized.

#### Explanation

1. **Function Definition:** `read_file_to_hashmap` reads key-value pairs from a specified file.
2. **File Reading:** It opens the file and reads each line, splitting it into key and value.
3. **Inserting into HashMap:** It attempts to convert the key and value into integers and insert them into the HashMap.
4. **Error Handling:** If a line cannot be converted into integers, it prints an error message.
5. **Example Usage:** After reading from the file, it shows the contents of the HashMap

#### OUTPUT:



```
PS C:\Users\Rashmitha Reddy\Downloads\week-1-website> & 'c:\Users\Rashmitha Reddy\AppData\Local\Programs\Python\Python38\python.exe' "c:\Users\Rashmitha Reddy\.vscode\extensions\ms-python.debugpy-2024.12.0-win32-x64\bundled\libs\debugpy\adapter\..\..\debugpy\launcher" '56444' '--' 'c:\Users\Rashmitha Reddy\Downloads\week-1-website\hash.py'
Bucket 0: None
Bucket 1: (10: 100) -> None
Bucket 2: (20: 200) -> None
Bucket 3: None
Bucket 4: (30: 300) -> None
Bucket 5: (40: 400) -> None
Bucket 6: None
Value for key 30: 300
```



```
Bucket 3: None
Bucket 4: (30: 300) -> None
Bucket 5: (40: 400) -> None
Bucket 6: None
Value for key 30: 300
Bucket 0: None
Bucket 1: (10: 100) -> None
Bucket 3: None
Bucket 4: (30: 300) -> None
Bucket 5: (40: 400) -> None
Bucket 6: None
Bucket 7: None
```