## hash table

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| --- | --- | --- |
| **Name** | **Class** | **Scenery** |
| hashTable\_setup1 | HashTableTest | Hash table is empty |
| hashTable\_setup2 | HashTableTest | The hash table has added values. |
| hashTable\_setup3 | HashTableTest | The hash table has added values and some are collided |

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| Test Objective: test if the hastable is capable of detecting when adding is not possible due to a repeated key | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | add | hashTable\_setUp2 | add(0.4, "Alejadro Magno")  add(0.4, "MonitorGod") | "Exception object with the same key that other" |

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| Test Objective: test if the hastable is capable of adding an element if the list is empty | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | add | hashTable\_setUp1 | 11.0, "Hola" | the element is added to the hash table |

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| --- | --- | --- | --- | --- |
| Test Objective: test if the hash table is capable of detecting when searching is not possible due to being empty | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | search | hashTable\_setUp1 | search(0,3) | Exception list is void |

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| Test Objective: test if the hash table is adding and removing effectively | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | remove | hashTable\_setUp1 | 0.3, 0.4, 2, 2.4, 4.5, 6.5, 8.5. | hash table should be empty |

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| Test Objective: test if search method is working properly | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | search | hashTable\_setUp2 | search(8.5) | se encuentra el valor buscado con la llave 0.4, en este caso “Juan” |

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| --- | --- | --- | --- | --- |
| Test Objective: test if search method is working properly when there is a collision | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | add  search | hashTable\_setUp2 | n = 0.39, "Marco Aurelio"  a = 0.37, "Alejandro Magno";  search(0.37) | 0.39, "Alejandro Magno" should be found |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: test if search throws exception when the item doesn’t existe | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | search | hashTable\_setUp2 | search(0.26) | Exception object doesn't exist |

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| Test Objective: test if remove method throws exception when the item doesn’t exist | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | remove | hashTable\_setUp2 | remove(0.26) | Exception object doesn’t exist |

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| Test Objective: test if remove method works properly | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | remove | hashTable\_setUp2 | remove(0.3) | the element should not exist in the hash table |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: test if clone method makes identical items | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | clone() | hashTable\_setUp2 |  | the elements should be the same in both hash tables |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Check if the elements are real clones and not pointer to the original items | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | clone() | hashTable\_setUp2 |  | the elements should be the same in both hash tables and changing something in one of the elements doesn’t change the clone of the other hash table |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: test the search method for an element that is collided | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | search | hashTable\_setUp3 | 14.12 | the item should be found and equal to “Aurelio” |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: test if remove works well when it is eliminating a collisioned element | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | remove | hashTable\_setUp3 | 14.12 | the element with key 14.12 should be removed |

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| --- | --- | --- | --- | --- |
| Test Objective: test if add method works well when it would make a collision | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| HashTableTest | add | hashTable\_setUp3 | 0.36, “Marco” | the element with key 14.12 should be removed |

# 

# Heap

|  |  |  |
| --- | --- | --- |
| **Name** | **Class** | **Scenery** |
| heap\_setup1 | HeapTest | An empty Heap. |
| heap\_setup2 | HeapTest | The Heap has some elements in it. |
| heap\_setup3 | HeapTest | The heap has some negative values in it |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: correctly inserting an element in an empty Heap | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | Insert | heap\_setUp1 | a = 1, 10 | Using the method estactMax() we can confirm if the item is at the top of the list, meaning it was inserted. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Confirm the extractMax() method is working properly extracting some elements | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | extractMax() | heap\_setUp2 |  | Extracting three elements should return: 10, 20, 30 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Check if changing the priority of one elements would make it to be on top of the Heap | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | increase key()  extractMax() | heap\_setUp2 | IncreaseKey(10, 4) | changing the priority of one element would affect the extractMax()’s result. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Check if changing the priority of one elements would make it to be on top of the Heap | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | increase key()  extractMax() | heap\_setUp2 | IncreaseKey(10, 4) | changing the priority of one element would affect the extractMax()’s result, in this case it should be equal to 10. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Check if extractMax method returns null when the Heap is empty() | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | extractMax() | heap\_setUp1 |  | null |

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| --- | --- | --- | --- | --- |
| Test Objective: Check if extractMax works even when the object is null | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | extractMax() | heap\_setUp1 |  | null |

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| --- | --- | --- | --- | --- |
| Test Objective: Check if adding and extracting an element works | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | Insert  ExtractMax() | heap\_setUp1 | 1,10  10 | The same element must be found |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Check if extractMax extract in order | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | ExtractMax() | heap\_setUp2 |  | 40  30  20 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Inserting and extracting elements with high priority | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | insert | heap\_setUp1 | Integer.MaxValue, 10  Integer.Min, 20  Integer.MaxValue, 30 | when extracting elements, it should be in order |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Inserting and extracting | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | insert | heap\_setUp1 | 5, 10 | 10 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Inserting and extracting them in order | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | insert | heap\_setUp1 | 3, 10  2, 20  1, 30  4, 40 | Extracting them should return  40  10  20  30 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Inserting elements with the same priority and extracting them | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | insert | heap\_setUp1 | 1, 10  1, 20  1, 30  1, 40  1, 50 | Extracting them should give all of these elements.  10  50  40  30  20 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Test if cloning makes an identical Heap | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| Heap | insert | heap\_setUp1 | 1, 10  2, 20  3, 30 | Each of the elements should be the same in both Heaps. |

## Queue

|  |  |  |
| --- | --- | --- |
| **Name** | **Class** | **Scenery** |
| queue\_setup1 | QueueTest | Queue is empty |
| queue\_setup2 | QueueTest | The queue has some String values |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Test if adding in an empty queue works | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| QueueTest | offer | queue\_setUp1 | “Hola” | The element should be added to the queue |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Test if adding in an non empty queue works | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| QueueTest | offer | queue\_setUp2 | “Hola” | The element should be added to the queue |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Test if removing an element in an empty queue throws exception | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| QueueTest | poll | queue\_setUp1 |  | it should throw an exception of type : exceptionThisDataStructureIsVoid |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Test if removing an element in an non empty queue works | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| QueueTest | poll | queue\_setUp2 |  | it should return “Hola” |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Test if looking at the element in the front in an empty queue throws an exception | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| QueueTest | front | queue\_setUp1 |  | it should throw an exception of type : exceptionThisDataStructureIsVoid |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Test if looking at the element in the front in an non empty queue throws an exception | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| QueueTest | front | queue\_setUp2 |  | it should return “Hola” |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Test if eliminating every element in the queue makes it empty | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| QueueTest | empty() | queue\_setUp2 | 4\*poll() | queue.isEmpty() = true |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Test if the size() method return the quantity of elements that are in the queue | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| QueueTest | size() | queue\_setUp2 |  | queue.size() == 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Test if the clone() methods clones properly each of the elements of the queue | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| QueueTest | size() | queue\_setUp2 |  | queue.size() == newQueue.size()  for every element  queue.poll() == newQueue.poll()  or equals if it is an object |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Check if cloning doesn’t make a reference to the previous element, but a new object that is identical. Changing an element of the first queue and the same element in the cloned queue shouldn’t be identical. | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| QueueTest | size() | queue\_setUp2 |  | The items shouldn’t be identical |

## Stack

|  |  |  |
| --- | --- | --- |
| **Name** | **Class** | **Scenery** |
| stack\_setup1 | StackTest |  |
| stack\_setup2 | StackTest | The stack has some String values |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: adding in an empty stack | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| StackTest | add() | stack\_setUp1 | “hola” | The items should be added |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: adding in an non empty stack | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| StackTest | add() | stack\_setUp2 | “hola” | The items should be added |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: removing an element in an empty stack | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| StackTest | pop() | stack\_setUp1 |  | throw an exceptionThisDataStructureIsVoid |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: removing an element in an non empty stack | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| StackTest | pop() | stack\_setUp2 |  | must be equal to “amazing” |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: looking at the top of an empty stack | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| StackTest | top() | stack\_setUp1 |  | must return null |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: looking at the top of an non empty stack | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| StackTest | top() | stack\_setUp2 |  | must return “amazing” |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: removing all elements must make the stack empty | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| StackTest | pop()  isEmpty() | stack\_setUp2 | pop() \* 5 | "Exception the list is void" |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: test the size() method, it should return the same amount of elements added | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| StackTest | size() | stack\_setUp2 |  | must return 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: test the size() method, it should return the same amount of elements added | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| StackTest | size() | stack\_setUp2 |  | must return 4 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: test clone method. | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| StackTest | size() | stack\_setUp2 |  | the nes stack must have identical elements, but modifying one doesn’t affect the other. |

## Agenda

|  |  |  |
| --- | --- | --- |
| **Name** | **Class** | **Scenery** |
| Agenda\_setup1 | AgendaTest | Empty agenda |
| Agenda\_setup2 | AgendaTest | The agenda have some tasks |
| Agenda\_setup1 | AgendaTest | An arraylist that represents the same values as in the setup 2 for comparing |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: adding in an empty Agenda | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | add() | Agenda\_setUp1 | "Aristizabal Lord of the night", "I should finish my book", "22-02-2024", 2 | The item should be added |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: adding in a non empty Agenda | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | add() | Agenda\_setUp2 | "The questions for the monitors", "Jhoan and Richard are good guys", "22-02-2024", 4 | The item should be added |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: searching in an empty agenda | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | search() | Agenda\_setUp1 | 1 | exceptionThisDataStructureIsVoid |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: searching a task that doesn’t exist | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | search() | Agenda\_setUp2 | 100 | exceptionTheObjectDoesntExist |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: searching a task that exist | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | search() | Agenda\_setUp2 | 100 | exceptionTheObjectDoesntExist |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Remove a task in empty agenda | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | remove() | Agenda\_setUp1 | 1 | "The task was not removed because the list is void" |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Remove a task that doesn’t exist | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | remove() | Agenda\_setUp2 | 100 | "The task was not removed because the task don’t exist" |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Remove a task that exist | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | remove() | Agenda\_setUp2 | 7 | it should return "The task was removed" and searching won’t work |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Remove a task that exist | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | remove() | Agenda\_setUp2 | 7 | it should return "The task was removed" and searching won’t work |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: Removing a task won’t eliminate others | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | remove() | Agenda\_setUp2 | 7 | the rest of task should still exist |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: modifying in empty Agenda | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | modyfy() | Agenda\_setUp2 | 1,"Aristizabal Lord of the night", "I should finish my book", "22-02-2024", 2 | exceptionThisDataStructureIsVoid |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: modifying in normal case | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | modyfy() | Agenda\_setUp2 | 1, "Hi, I am German", " And the video at today", "22-02-2025", 3 | the task number 1, should be changed with this information, it can be confirmed by searching. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: modifying if the item doesn’t exist | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | modyfy() | Agenda\_setUp2 | 100, "Hi, I am German", " And the video at today", "22-02-2025", 3 | "The task was not modified because the task don’t exist" |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: cloning and agenda makes identical items but not a reference to the same object | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | modyfy() | Agenda\_setUp2 |  | “The agenda was cloned, different objects” |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: changing a clone won’t affect the original agenda. | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| AgendaTest | modyfy() | Agenda\_setUp2 |  | the values must be different |

## Task

|  |  |  |
| --- | --- | --- |
| **Name** | **Class** | **Scenery** |
| task\_setup1 | TaskTest | A task with this information:  12345678,"Marco Aurelio ","he owes me money","22-02-2034",2 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Objective: test if the constructor assigns the atributes properly | | | | |
| **Class** | **Method** | **Scenery** | **Input value** | **Return** |
| TaskTest | Task() | Task\_setup1 |  | All the atributes must be assigned |