Spatial complexity analysis:

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| *Statement* |
| public String addTask(String id, String title, String description, Date deadline, int priority) {  msg = "";  try {  if (id == null || title == null || description == null || deadline == null) {  throw new NullValueException(  "Error al agregar la tarea: Todos los campos deben ser proporcionados y no pueden ser nulos.");  } else {  Task task = new Task(id, title, description, deadline, priority);  taskTable.put(id, task);  if (priority >= 2) {  priorityTask.enqueue(task);  } else {  nonPriorityQueue.enqueue(task);  }  msg = "Tarea agregada exitosamente.";  Actions action = new Actions("Add task", task);  actionStack.push(action);  }  } catch (NullValueException e) {  msg = e.getMessage();  }  return msg;  } |

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| --- | --- | --- | --- |
| Type | Variable | Lenght | Amount Values |
| *Input* | *id* | *-* | *0* |
| *title* | *-* | *0* |
| *description* | *-* | *0* |
| *deadline* | *12* | *1* |
| *priority* | *32* | *1* |
| *Aux* | *task* | *16* | *1* |
| *Output* | *msg* | *N/A* |  |

*𝑖𝑛𝑝𝑢𝑡 + 𝐴𝑢𝑥 + 𝑂𝑢𝑡𝑝𝑢𝑡 = 3 = 𝑂(1)*

The spatial complexity of this algorithm is 𝑂(1).

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| *Statement* |
| public String modifyTask(String taskId, String newTitle, String newDescription, Date newDeadline,  int newIsPriority) {  msg = "";  Task task = taskTable.get(taskId);  if (task != null) {  if (newTitle != null && !newTitle.isEmpty()) {  task.setTitle(newTitle);  msg += "\nTítulo modificado.";  }  if (newDescription != null && !newDescription.isEmpty()) {  task.setDescription(newDescription);  msg += "\nDescripción modificada.";  }  if (newDeadline != null) {  task.setDeadline(newDeadline);  msg += "\nFecha límite modificada.";  }  task.setPriority(newIsPriority);  msg += "\nPrioridad modificada";  if (!msg.isEmpty()) {  msg = "Tarea modificada exitosamente:" + msg;  Task aftertask = taskTable.get(taskId);  Actions action = new Actions("Modify task", task, aftertask);  actionStack.push(action);  } else {  msg = "No se realizaron modificaciones.";  }  } else {  msg = "La tarea con el ID " + taskId + " no existe.";  }  return msg + "\n";  } |

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| Type | Variable | Lenght | Amount Values |
| *Input* | *taskId* | *-* | *0* |
| *newTitle* | *-* | *0* |
| *newDescription* | *-* | *0* |
| *newDeadline* | *12* | *1* |
| *newPriority* | *32* | *1* |
| *Aux* | *task* | *16* | *1* |
| *afterTask* | *16* | *1* |
| *action* | *16* | *1* |
| *Output* | *msg* | *N/A* | *0* |

*𝑖𝑛𝑝𝑢𝑡 + 𝐴𝑢𝑥 + 𝑂𝑢𝑡𝑝𝑢𝑡 = 5 = 𝑂(1)*

The spatial complexity of this algorithm is 𝑂(1).