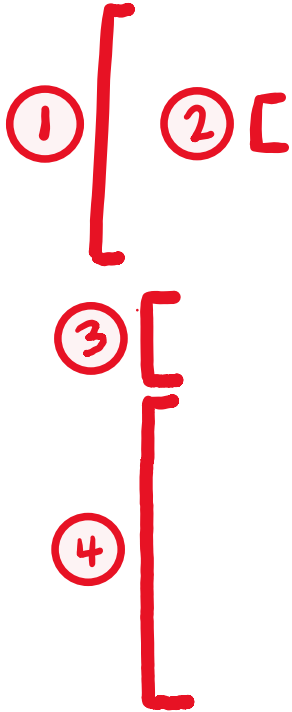


# A5: White Box Testing

White box testing for creating a project and creating a task for a task management system.

Below is how the paths and blocks have been broken up:

## CREATE PROJECT – PATH COVERAGE



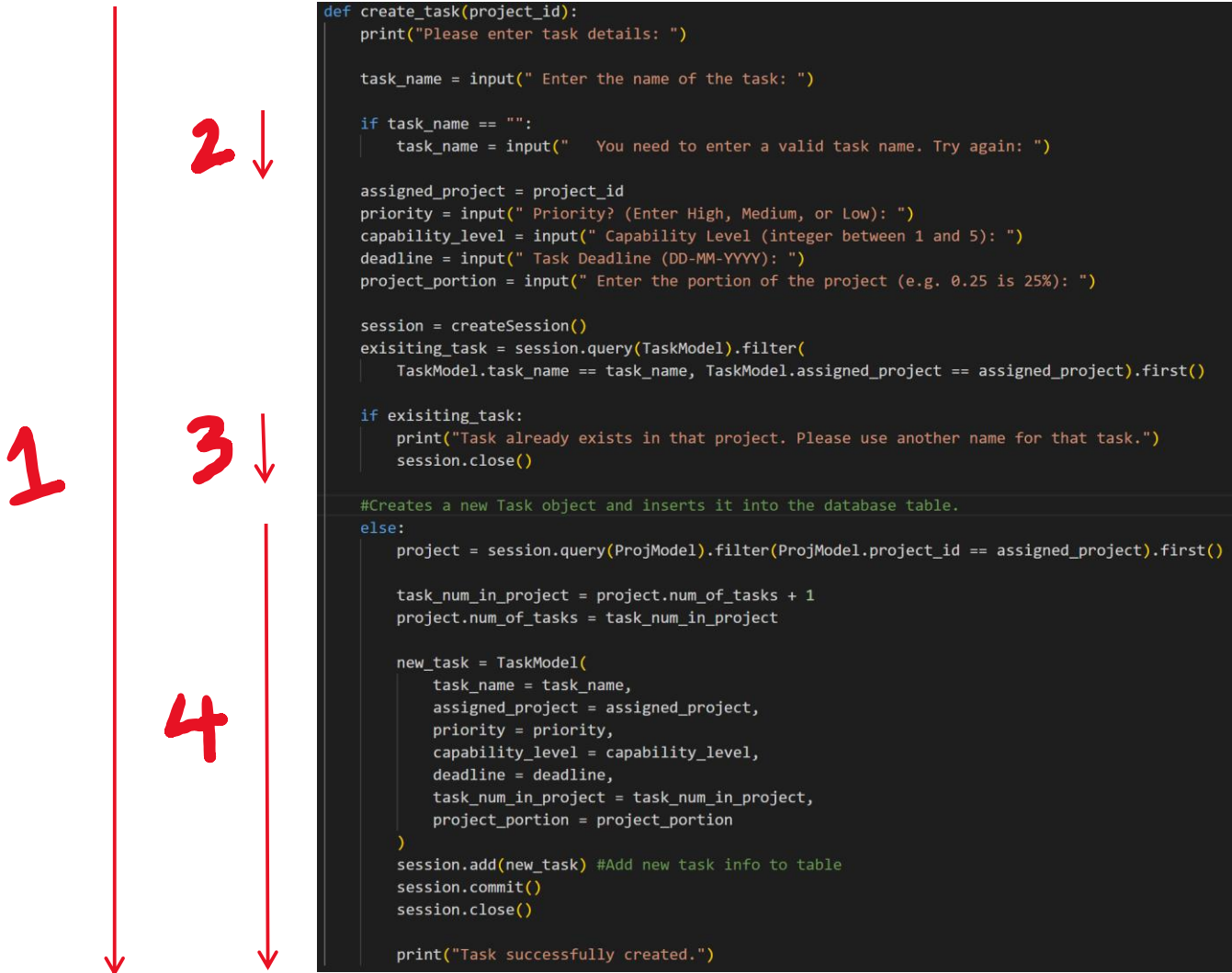
```
def create_project():
    print("Please enter Project details: ")

    project_name = input("Enter the name of the project: ")
    if project_name == "":
        project_name = input("You must enter a name. Try again: ")
    project_id = input("Enter the project's ID: ")
    deadline = input("Project Deadline (DD-MM-YYYY): ")
    priority = input("Priority: ")
    owner = input("Enter the name of the project's manager: ")
    session = createSession()
    existing_proj = session.query(ProjectModel).filter(ProjectModel.project_id == project_id).first()

    if existing_proj:
        print("Project already exists. Try again.")
        session.close()
    #Creates a new User object and inserts it into the database table.
    else:
        new_project = ProjectModel(
            project_name = project_name,
            project_id = project_id,
            deadline = deadline,
            priority = priority,
            owner = owner,
            num_of_tasks = 0
        )
        session.add(new_project) #Add new user info to table
        session.commit()
        session.close()
    print("Project created successfully.")
```

PATH 1	PATH 2	PATH 3	PATH 4
<pre>graph TD     1((1)) --&gt; 2((2))     2 --&gt; 3((3))</pre>	<pre>graph TD     1((1)) --&gt; 3((3))</pre>	<pre>graph TD     1((1)) --&gt; 2((2))     2 --&gt; 4((4))</pre>	<pre>graph TD     1((1)) --&gt; 4((4))</pre>
<ul style="list-style-type: none"><li>- Empty project name input = ""</li><li>- Enter existing project name (That is currently being used in the code)<ul style="list-style-type: none"><li>o "Test Project"</li></ul></li></ul>	<ul style="list-style-type: none"><li>- Enter existing project name<ul style="list-style-type: none"><li>o "Test Project"</li></ul></li></ul>	<ul style="list-style-type: none"><li>- Enter empty project name -&gt; ""</li><li>- Enter successful new project name<ul style="list-style-type: none"><li>o "New Test Name"</li></ul></li></ul>	<ul style="list-style-type: none"><li>- Enter successful new project name<ul style="list-style-type: none"><li>- "Test New Name" (Or whatever variation it has to be to not clash with the above test)</li></ul></li></ul>

## CREATE TASK – BASIC BLOCK COVERAGE



**Create Tasks (Whitebox Basic Block Coverage):**

- *Users will be able to create tasks and projects.*
- *Users will be able to add tasks to projects.*
- *See test\_create\_task.py file for the following test cases*

Test Case	Input	Expected Output	Actual Output	Test Case Pass or Fail
Create a task – Testing Basic Block 1	Task Name Priority Capability Level Deadline Project Portion	-The task should be created without errors. -Number of tasks should be updated in its respective project.	Task is successfully created. Number of tasks updates correctly.	Pass
Create a task – Testing Basic Block 2	Priority Capability Level Deadline Project Portion	-User will get re-prompted to input the missing field. -Task will then be successfully created. -Number of tasks should be updated in its respective project.	User asked to re-enter task name, then task created successfully. Number of tasks updates correctly.	Fail
Create a task – Testing Basic Block 3	Task Name Priority Capability Level Deadline Project Portion	-In this case, the task already exists. -Expect a task already exists output and prompts to enter new information if requested.	Task creation is unsuccessful since task already exists. User gets to retry (if they want to create a new task).	Pass
Create a task – Testing Basic Block 4	Priority Capability Level Deadline Project Portion	-User will get re-prompted to input the missing field. - In this case, the task already exists. -Expect a task already exists output and prompts to enter new information if requested.	User asked to re-enter task name. Task creation is unsuccessful since task already exists. User gets to retry (if they want to create a new task).	Fail

**Create Projects (White Box Path Testing):**

- *Users will be able to create projects.*
- *Users will be able to add tasks to projects.*
- *See test\_create\_project.py file for the following test cases*

Test Case	Input	Expected Output	Actual Output	Test Case Pass or Fail
Create a project – Path Test 1	Empty Project Name, then Existing Project Name Project ID Deadline Owner Priority Num of Tasks	-Project has not been created due to an empty project name -Project name is replaced with an existing project name and is not created	“You must enter a name. Project already exists. Try again.”	Pass
Create a project – Path Test 2	Existing Project Name Project ID Deadline Owner Priority Num of Tasks	-User enters an existing project name -Project is not created	“Project already exists. Try again.”	Pass
Create a project – Path Test 3	Empty Project Name Project ID Deadline Owner Priority Num of Tasks	- Project has not been created due to an empty project name -User is prompted again and enters a valid project name -Project is created	“You must enter a name. Project created successfully.”	Pass
Create a project – Path Test 4	Project Name Project ID Deadline Owner Priority Num of Tasks	-User enters valid project name -Project is created	“Project created successfully.”	Pass