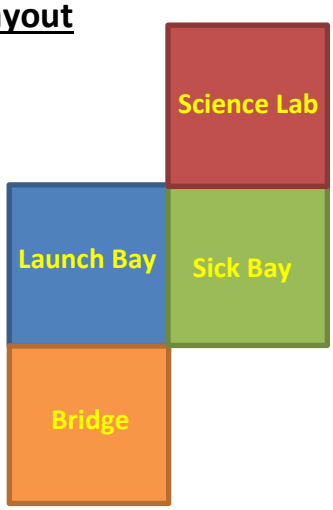
PDDL Report

- ## General Information and Assumptions:

  The submarine is initially given missions by the SeaPort to complete. After each mission, it should return to the SeaPort.
  The captain orders the navigator to travel to the required underwater region (ridge or abyssal) depending on the mission.
  If that region does not contain an abyssal or ridge, the goal will be simplified to false and mission will fail.
  If it does contain the region, the navigator can move the submarine to the underwater region which contains the ridge or abyssal.
  A minisub is only allowed to be released if the submarine is at the required region, if there is a minisub of that type present on the launch bay and if there is an engineer present on the launch bay. The engineer will operate the launch of the mini submarine.
  The **drill minisub**, will drill for minerals **only** if minerals are present on the ridge. After drilling, it returns to the submarine. No personnel are present in the drill minisub.
  When a **drill minisub** is retrieved, an engineer and science officer is required to be present on the launch bay.
  The science officer collects the minerals from the launch bay and keeps it in the science lab. Only if a science officer is present in the lab, the minerals collected can be studied. After the study is complete, a mineral report is generated.
  The **explore minisub,** is used for exploration and **an engineer is required** to operate the sub.
  If the mission is to **deploy sensors**, the captain will **not be present** in the minisub. After setting up and deploying the sensors, when the minisub returns, the engineer who operates the minisub is required to activate the sensor net. After activation, a sensor report is generated.
  If the mission is to **meet the base leaders,** the captain and security **are required to be present** in the minisub. The security is present to protect the captain. The captain meets the base leaders and returns to the submarine along with the other personnels present.
  If the captain returns unharmed back to the submarine, a base report is generated stating the base status is **passed**.
  If there are atlanteans present on the base and the security isn't there to protect the captain, the captain will be injured and has to immediately return back to the submarine where he will be escorted by a security to the sickbay. In the sickbay, a robot will treat the injured captain. A base report is generated stating the base status is **under attack**.
  When there is a vortex present in a ridge/abyssal/underwater region, a science officer is required to scan the vortex. The scan will only be complete after the submarine comes out of the vortex.
  A submarine can only enter the vortex if the captain orders the navigator to enter the vortex and if the pressure shields are up or else the goal simplifies to false.
  The submarine is transported to another underwater region and once the scan is complete, a vortex report is generated.

If the underwater region **does not contain a ridge or abyssal** and instead **contains a vortex**, and the mission for example was to drill for minerals at a present ridge etc. the goal will be simplified to false and the science officer is required to scan the vortex and perform the necessary vortex operations stated above.
After the missions are complete, the reports collected during the different missions are placed in a folder and once the submarine is returns to the seaport, the reports in the folder are present in the port system.

- ## Submarine Layout



- ## Additional Feature

  The explore minisub has an ability to detect for fossils and collect them. A science officer can collect the fossil from the storage present in the minisub. A science officer present in the lab can study the fossils and generate a fossil report.

- ## Design Decisions

  I have used types, strips, and equality in the code. Type hierarchy also has been used.
  The IDE used is VS Code and the planner used is Metric-FF
  There various super types include – report, minisub, personnel, subSections