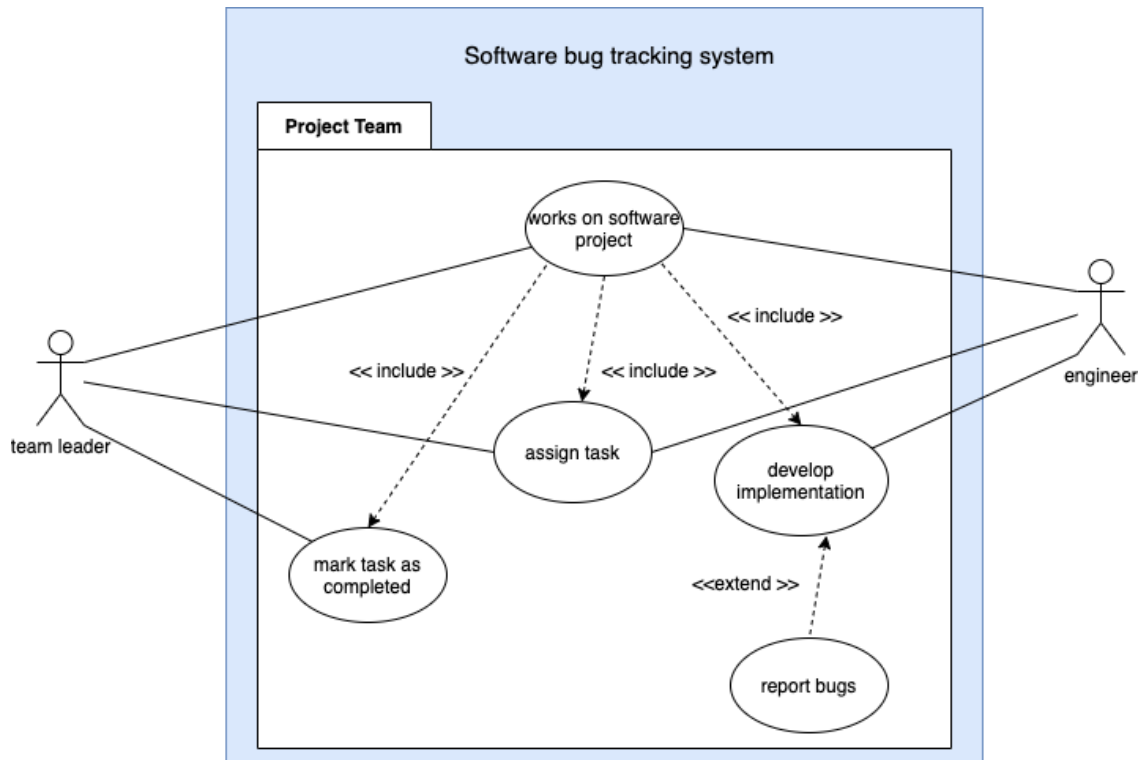


### Exercise 3. Modelling with UML

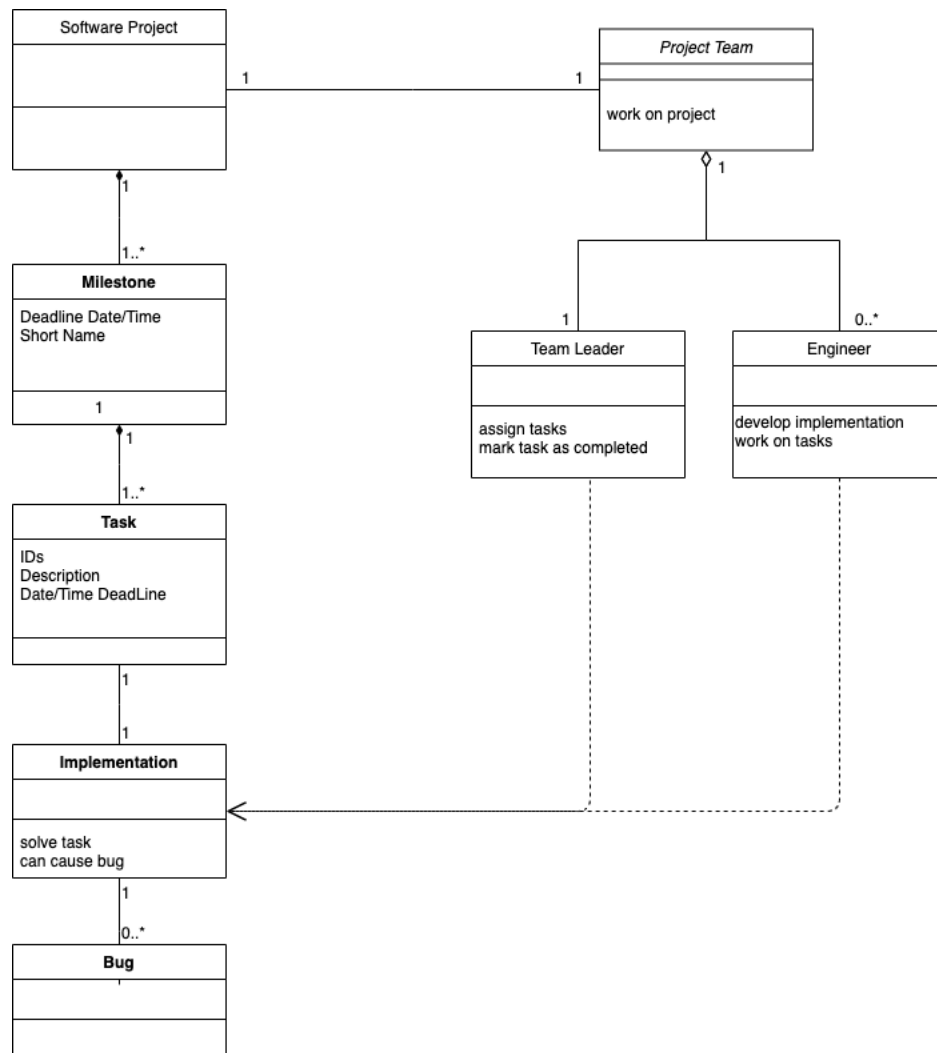
s1270036 Yuki Tome

[1] Use case diagram



A project team works on software project. A project team include a team leader and engineers. A team leader assigns tasks and mark them as completed. An engineer is assigned the tasks and develops implementation. Working on software project include marking task as completed and assigning tasks and developing implementation. And the implementation developed may be reported as a bug. So there is an extended relationship between developing an implementation and reporting a bug.

[2] Class diagram



A software project consists of several milestones.

So, the relationship between software project and milestones is 1 to many.

Each milestone has the attributes of the deadline date/time and the short name.

A milestone includes a number of tasks.

So, the relationship between a milestone and tasks is 1 to 1 or many

A project team works on the project.

So, the relationship between software project and project team is 1 to 1.

A team includes many engineers (at least one).

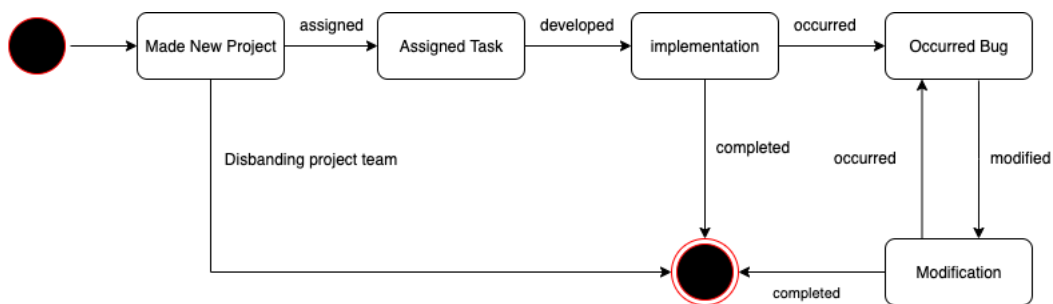
A team leader is only one in the project.

So, the relationship between the team leader and project team is 1 to 1,

the relationship between engineers and Project team is 1 to 0 or many because there is absolutely one team leader on the project team, so the engineer is more than 0.

A team leader and engineers (more than 0) are assigned to task and develop implementation.  
Tasks have the attributes of IDs, descriptions and date/time deadline.  
The team leader assigns tasks and marks the tasks as completed.  
An implementation solves task.  
There may be bugs in the implementation that was developed.  
So, the relationship between implementation and bugs is 1 to 0 or many.

[3] State chart diagram



The start is making new project. Then the task is be assigned. Next, develop implementation. Then there may be a bug in the implementation. If there is a bug, engineer will modify it. And if there is a bug in what they modified, we will modify it again. When the bug-free implementation is complete and the project team is disbanded, that's when it ends. So, if there are no bugs in the implementation itself, it's complete, and if there are bugs, it's complete when the implementation is bug-free.