**Planning**

* Given a description of the initial state, a set of possible actions and goal, come up with a sequence of actions (plan) to achieve this goal

**Scheduling**

* Given a set of possible actions and constraints, decide how to execute all the actions in an efficient manner (create a schedule) to meet resource and deadline constraints

**Classical planning** is defined as the task of finding a sequence of actions to accomplish a goal in a discrete, deterministic, static, fully observable environment

**Scheduling**

* **Planning so far: choice of actions**
* **In real world:**
  + Actions occur at certain moments in time
  + Actions have a duration
  + Actions may require resources
    - * Consumable (e.g., fuel)
      * Reusable (e.g., a pilot)
* **Approach *plan first, schedule later*:** 
  + Planning phase: build a (partial) plan with some ordering constraints, regardless action durations
  + Scheduling phase: add temporal info to the plan to meet resource and deadline constraints

**Classical search VS Classical planning**

A classical search problem is a problem in which a sequence of actions must be performed in order to reach a goal state from a starting state. The actions have consequences, and the goal is to find a sequence of actions that will lead to the goal state while minimizing the cost of the actions.

A classical planning problem is a problem in which a sequence of actions must be planned in order to achieve a goal state from a given starting state. In a planning problem, the actions have preconditions and effects, and the goal is to find a plan that will achieve the goal state while satisfying the preconditions and effects of the actions.

One key difference between search and planning is that in a search problem, the sequence of actions is not known in advance, and the goal is to find a sequence of actions that will lead to the goal state. In a planning problem, the sequence of actions is known in advance, and the goal is to determine whether it is possible to execute the plan and achieve the goal state.

**Planning and Scheduling difference**

Planning is the process of determining a sequence of actions that will achieve a goal state. Scheduling is the process of allocating resources and time to carry out a plan.

In the context of artificial intelligence and computer science, planning typically refers to the process of generating a plan to achieve a goal state, while scheduling refers to the process of assigning resources and times to the actions in a plan.

For example, consider a robot that is tasked with assembling a car. The planning process might involve determining the sequence of actions that the robot needs to take to assemble the car, while the scheduling process would involve determining when and how the robot should perform each action, given the available resources and constraints.

In summary, planning is about determining the steps needed to achieve a goal, while scheduling is about deciding when and how to carry out those steps.