* **What is motion planning?**

Idea of motion planning is to allow intelligent robots to be able to coordinate their own motions in order to complete some sort of high level specified task. It can be about reaching a target, avoiding collisions etc.

* **How is motion planning different from action planning?**

**Action planning:** Process which will help person to focus their idea and to decide what steps that we need to take in order to achieve some particular goal.

**Motion planning:** Given a movable object and a description of the environment, find a sequence of valid configurations that moves the object from start to pre-determined goal.

The **difference** is, motion planning just deals with one particular aspect of planning which is movement while action planning is used to formulate strategies to achieve a certain goal.

* **Describe three sample real-world applications of motion planning mentioned in the talks.**

**Testing design requirements for intelligent CAD Applications:** Digital testing of physical ‘mock-ups’. It saves time and money, is more accurate and enables more extensive testing.

**Computational biology & chemistry:** It is used to simulate molecular motions in order to find particular trajectories.

**Coordinated behaviours for multiple agents:** It can also be used to simulate the behaviour of multiple agents in order to come up with a feasible solution to problems created by the multiple agents.

* **Suppose that there are islands in the river. How can you use motion planning to solve the Fox, Goose and Bag of Beans Puzzle ?**

In that case, we can consider islands as temporary stop points just like one side of the river. So, we can write our code according to it and decide which island is to best option(feasible solution) given that we already have a goal state and constraints.

Since there are more than 2 options we need to think about more possibilities and more actions in order to succesfully simulate the problem. This will allow us to decide which path to take and in which place to stop by using motion planning.

Therefore, each motion will be considered as one trip with the boat and main objective will be to carry goose, fox and bag of beans in minimum number of trips.