Solve the following problems.
Submission date: 10.01.2019

- **Missionaries and Cannibals Problem:** Three Missionaries and three cannibals are on the left bank of a river. There is a boat on their side of the river that can be used to carry one or two people. The goal is to use this boat to cross the river in such a way that cannibals never outnumber missionaries on either bank of the river.

- **Lion, Lamb and grass problem:** A person has one lion, one lamb and a bundle of grass. He wants to cross a river but there is only one boat and it can't sustain the weight of more than two articles at time. Also, he has to make sure that the lion doesn't eat the lamb and the lamb doesn't eat the grass. How will he get to the other side of the river with all three intact?

- **Man, Woman and two children problem:** A man and a woman of equal weight, together with two children, each of half their weight, wish to cross a river using a boat which can only carry the weight of one adult. The goal is to use this boat to cross the river.

1. Formulate the problem(define initial state, goal state, successor function) and draw a diagram of the complete state space (without repeated states).

2. Solve the problem optimally using an appropriate search algorithm.

Hints link:

https://courses.cs.washington.edu/courses/cse415/14sp/assignments/hw1/hw1.html

http://www.cse.unsw.edu.au/~cs3411/16s1/tut/sol/wk03sol.html

http://facweb.cti.depaul.edu/mobasher/classes/HON207/Homework/a3-sol.pdf

https://www.it.uu.se/edu/course/homepage/ai/vt08/Lecture_2/