Artificial Intelligence
Exp- 7 Uncertain Problem (Bayesian Belief Network)

Team Ai 4 life:
Praneet Botke (RA1911031010149)
Adesh Sadekar (RA1911031010141)
Aayushi Goenka (RA1911031010151)
Sonia Raja (RA1911031010152)
Srinivasulu Kapuluru (RA1911031010142)
Sai Mohit Ambekar (RA1911031010137)

Problem:
Monty Hall Problem

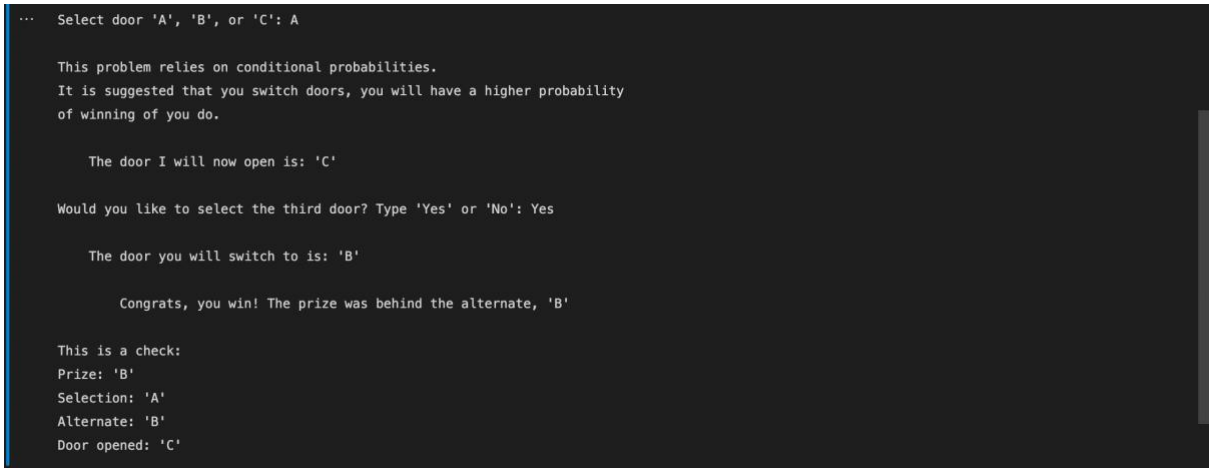
Problem statement:
This is the Monty Hall problem. There are 3 doors in front of you, and there is a prize behind one of them. Once you select a door, I will open one of the two you had not selected which does not have a prize behind it. You will then have the opportunity to switch from the door you originally selected to an alternate door.

Code:

```
import random
A = "A"
B = "B"
C = "C"
doors = ["A", "B", "C"]
prize = random.choice(doors)
selection = input("Select door 'A', 'B', or 'C': ")
print("""
This problem relies on conditional probabilities.
It is suggested that you switch doors, you will have a higher probability
of winning of you do.""")
if selection == prize:
    remaining = list(set(doors) - set(prize))
    open_door = random.choice(list(set(doors) - set(random.choice(remaining))))
    alternate = random.choice(list(set(doors) - set(open_door) - set(prize)))
else:
```

```
    open_door = random.choice(list(set(doors) - set(selection) - set(prize)))
    alternate = random.choice(list(set(doors) - set(open_door) - set(selection)))
    print("""
    The door I will now open is: %r
    """ % open_door)
    second_chance = input("Would you like to select the third door? Type 'Yes' or 'No': ")
if second_chance == "Yes":
    print("""
    The door you will switch to is: %r """ % alternate)
    if alternate == prize:
        print("""
        Congrats, you win! The prize was behind the alternate, %r""" % alternate)
    else:
        print("""
        Sorry, the prize was behind the original door %r""" % prize)
if second_chance != "Yes":
    print("""
    You decided to keep your initial door, %r""" % selection)
    if selection != prize:
        print("""
        Sorry, the prize was behind the alternate door, %r""" % prize)
    else:
        print("""
        Congrats, you win! The prize was behind your original
        selection, %r""" % selection)
print("""
This is a check:""")
print("Prize: %r" % prize)
print("Selection: %r " % selection)
print("Alternate: %r " % alternate)
print("Door opened: %r " % open_door)
```

Output:



Result:

The problem statement for Uncertain Problem - Bayesian Belief Network(Monty Hall Problem) is solved.