STA130_HW2

September 20, 2024

```python
# Q1&2&3
import numpy as np

reps = 100000
wins = 0

for _ in range(reps):
    winning_door = np.random.choice([1, 2, 3])
    initial_choice = np.random.choice([1, 2, 3])

    # Host reveals a losing door
    remaining_doors = [door for door in [1, 2, 3] if door != initial_choice and
    ↪door != winning_door]
    revealed_door = np.random.choice(remaining_doors)

    # Player swaps to the other unopened door
    swapped_choice = [door for door in [1, 2, 3] if door != initial_choice and
    ↪door != revealed_door][0]

    # Check if the swapped choice is the winning door
    if swapped_choice == winning_door:
        wins += 1

# Calculate win rate
win_rate = wins / reps
print win_rate
# https://chatgpt.com/share/66eca488-bfa8-800b-8f7d-66994ee90236
```

```python
# Q2 The 'try except' used in the source code is not suitable for normal flow
↪control.
# The improved code calculates the 'unposed door' directly using 'win', which
↪shortens the number of lines and allows the code to run more efficiently
# The improved version reduces these operations by working directly with
↪filtered, which improves the overall performance slightly due to the more
↪efficient handling of data structures.
```

```python
# Q4&5.1&5.2 https://chatgpt.com/share/66ecae80-9ccc-800b-b559-ca6e73619a44
```

```python
# Q5.3 https://chatgpt.com/share/66ecb2ba-321c-8013-8c98-895a77a92757
```

```python
# Q6.1 chatgpt Can make a very comprehensive and quick explanation of Monte
↪Hall problem and " Markovian ChatBot &quo; code, including using codes that
↪have not been learned and giving explanations of the code. By interacting
↪with chatgpt, you can get a lot of more efficient code.
# Q6.2 However, chatgpt also fails to explain some questions, and needs more
↪detailed questions to get the answers. This question can generally be
↪resolved after two or three similar questions.
# Q6.3 According to the current experience with chatgpt, AI can be used as a
↪fast and effective way to learn, but too easy to get the answer may lead to
↪low memory of knowledge points, and you need to learn with books or other
↪videos.
```

```python
# Q7 Some ai like chatgpt can help people understand knowledge quickly, but
↪excessive use of ai may also lead to people gradually neglect the practice
↪of basic knowledge. This may not be a good thing for students.
# Most of the knowledge in class is also presented through code, which may be
↪difficult for students who do not have a programming foundation. Students
↪need to use a lot of time after class to learn through various online videos
↪or learning ai.
```

```python
# Q8.1&8.2&8.3 https://chatgpt.com/share/66ecddd4-5058-8011-bf6e-449611302bb9
# Q8.4 For data science project manager, he has used a lot of programming code,
↪big data model and other relevant knowledge. Learning well is his course can
↪help me have a good foundation for statistics and programming.
# Q8.5 The search of the occupation-related website can be written down to
↪chatgpt in the form of code, and after he has mastered the relevant field,
↪he can make a more realistic report based on new information
```

```python
# Q9 Yes
```