Information Security

Assignment # 04

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Code for Birthday Paradox:

```python
import random

def generate_birthdays(num_people):
    # Generate random birthdays for a group of people
    birthdays = [random.randint(1, 365) for _ in range(num_people)]
    return birthdays

def has_shared_birthday(birthdays):
    # Check if there are shared birthdays in the group
    unique_birthdays = set(birthdays)
    return len(birthdays) != len(unique_birthdays)

def birthday_paradox_simulation(num_simulations, num_people):
    shared_birthday_count = 0

    for _ in range(num_simulations):
        birthdays = generate_birthdays(num_people)
        if has_shared_birthday(birthdays):
            shared_birthday_count += 1

    probability = shared_birthday_count / num_simulations
    return probability

# Number of simulations to run
num_simulations = 10000
# Number of people in each group
num_people = 23

probability = birthday_paradox_simulation(num_simulations, num_people)

print(f"Probability of at least two people sharing a birthday with {num_people} people: {probability:.2f}")
```

Difference between Privacy and Confidentiality

Privacy refers to an individual's right about the disclosure of their personal information. It concerns the people.
Confidentiality means to protect data from unauthorized access and disclosure. It could be used to protect the privacy of individuals or organizations.