

# Shweta\_Shinde\_Assignments5

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## 0.1 Assignments for Probability 2

### 0.1.1 A 1

A fair coin is flipped 10 times. What is the probability of getting exactly 6 heads?

```
[1]: # Write your solution code here
# You can use scipy.stats.binom to create binomial distribution objects
# For example:
from scipy.stats import binom

# Parameters
n = 10 # Number of flips
k = 6  # Desired number of heads
p = 0.5 # Probability of heads for a fair coin

# Calculate the probability
probability = binom.pmf(k, n, p)

print(f"The probability of getting exactly 6 heads in 10 flips is: {probability:
↪.5f}")
```

The probability of getting exactly 6 heads in 10 flips is: 0.20508

### 0.1.2 A 2

Assume that 45% of the population has brown eyes. If 12 people are randomly selected, what is the probability that exactly 5 of them have brown eyes?

```
[2]: # Write your solution code here
# You can use scipy.stats.binom to create binomial distribution objects
# For example:
from scipy.stats import binom

# Parameters
n = 12 # Number of people selected
k = 5  # Desired number of people with brown eyes
p = 0.45 # Probability of having brown eyes
```

```
# Calculate the probability
probability = binom.pmf(k, n, p)

print(f"The probability that exactly 5 out of 12 people have brown eyes is:␣
↪{probability:.5f}")
```

The probability that exactly 5 out of 12 people have brown eyes is: 0.22250

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