Assignment -1

1. Bookseller.csv

```
[6] total_days = len(bookseller_df)

    days_geq_96 = bookseller_df[bookseller_df['Number of Books Sold'] >= 96].shape[0]


    prob_geq_96 = days_geq_96 / total_days

    print(f"Probability that more than or equal to 96 books will be sold on a given day: {prob_geq_96}")

    Probability that more than or equal to 96 books will be sold on a given day: 0.45081967213114754

[7] # Count of days where less than or equal to 92 books were sold
    days_leq_92 = bookseller_df[bookseller_df['Number of Books Sold'] <= 92].shape[0]

    # Probability calculation
    prob_leq_92 = days_leq_92 / total_days

    print(f"Probability that less than or equal to 92 books will be sold on a given day: {prob_leq_92}")

    Probability that less than or equal to 92 books will be sold on a given day: 0.27595628415300544
```

1. Probability that more than or equal to 96 books will be sold on a given day: 0.45081967213114754
2. Probability that less than or equal to 92 books will be sold on a given day: 0.27595628415300544

Debugging.csv

```
# Assuming the data follows a normal distribution, get mean and standard deviation
mean_time = debugging_df['Time Taken to fix the bug'].mean()
std_time = debugging_df['Time Taken to fix the bug'].std()

# Probability that X < 3 hours
prob_less_than_3 = stats.norm.cdf(3, loc=mean_time, scale=std_time)
print(f"Probability that debugging requires less than 3 hours: {prob_less_than_3}")
# Probability that X > 2 hours
prob_more_than_2 = 1 - stats.norm.cdf(2, loc=mean_time, scale=std_time)
print(f"Probability that debugging requires more than 2 hours: {prob_more_than_2}")
# Find the 50th percentile (median) of the debugging time
percentile_50 = np.percentile(debugging_df['Time Taken to fix the bug'], 50)
print(f"The 50th percentile (median) of the debugging time: {percentile_50}")

Probability that debugging requires less than 3 hours: 0.4956422029421937
Probability that debugging requires more than 2 hours: 0.8112874434344626
The 50th percentile (median) of the debugging time: 3.005
```

1. Probability that debugging requires less than 3 hours: 0.4956422029421937
2. Probability that debugging requires more than 2 hours: 0.8112874434344626
3. The 50th percentile (median) of the debugging time: 3.005