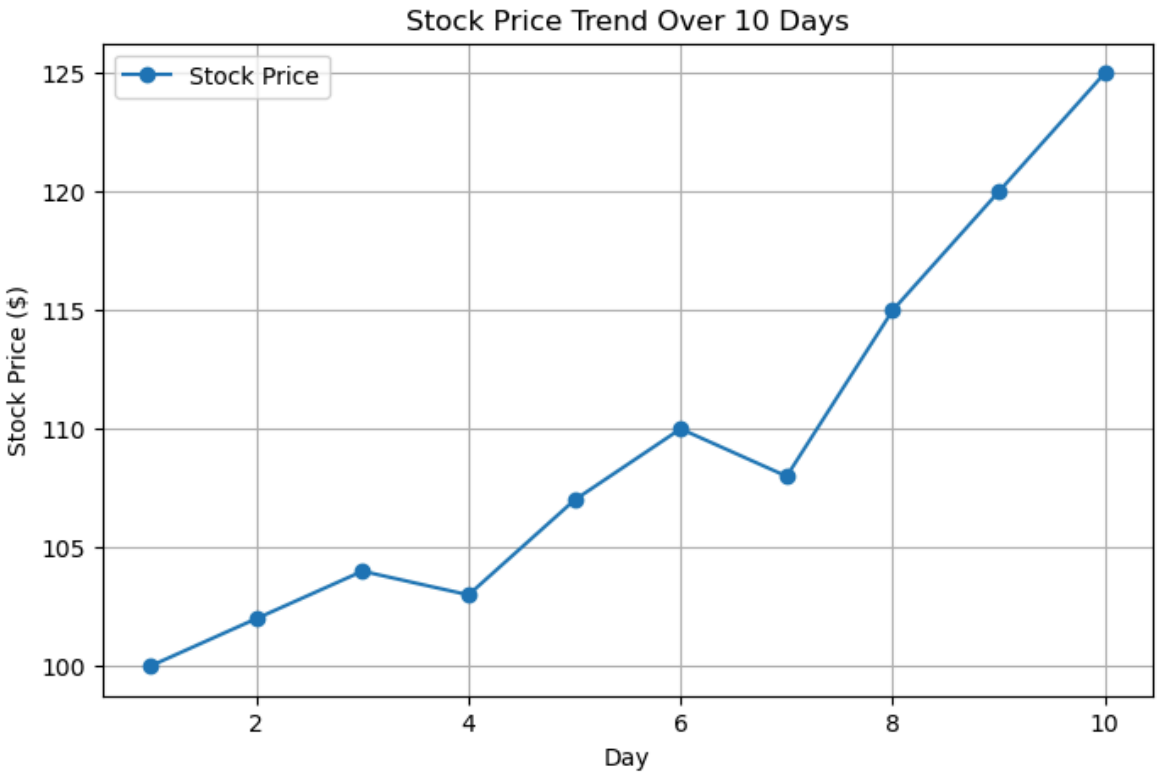
In [1]:
```
import matplotlib.pyplot as plt
```

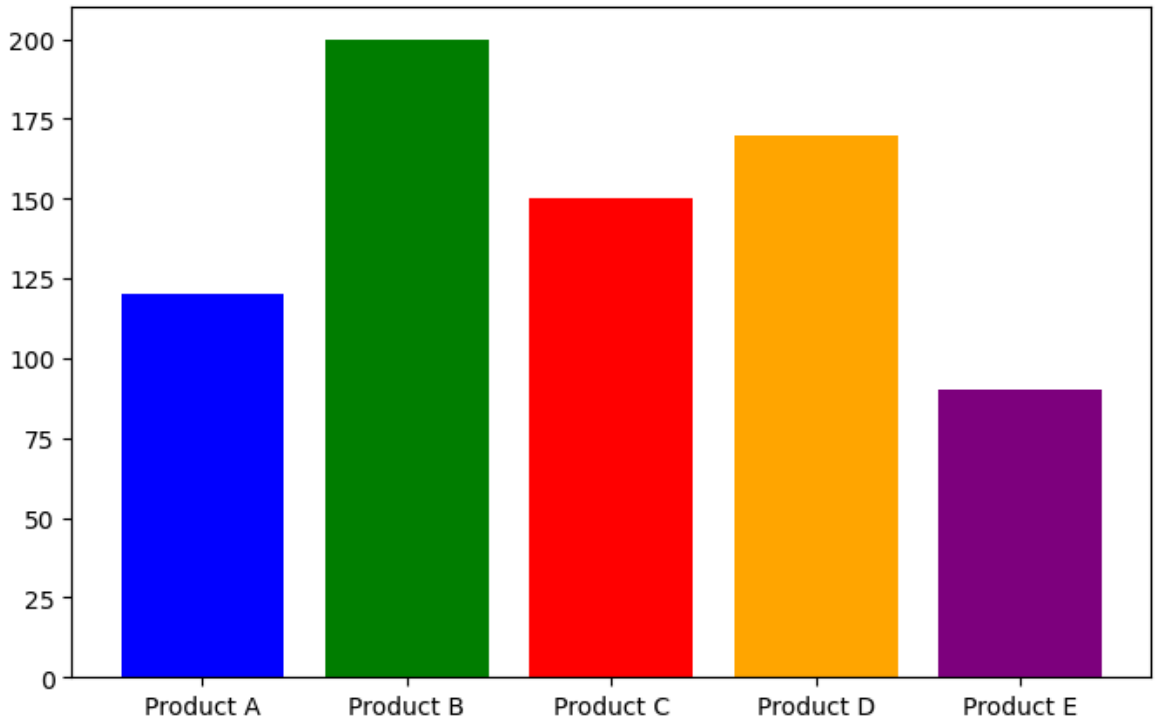
In [2]:
```
#1.Line plot
#data
days = list(range(1,11))
stock_prices = [100,102,104,103,107,110,108,115,120,125]
```

In [5]:
```
#plot
plt.figure(figsize=(8, 5))
plt.plot(days, stock_prices, label='Stock Price', marker='o')
plt.title('Stock Price Trend Over 10 Days')
plt.xlabel('Day')
plt.ylabel('Stock Price ($)')
plt.legend()
plt.grid(True)
plt.show()
```



In [6]:
```
# 2.Bar chart
# Data
products = ['Product A', 'Product B', 'Product C', 'Product D', 'Product E']
sales = [120, 200, 150, 170, 90]
```

In [7]:
```
# Plot
plt.figure(figsize=(8, 5))
colors = ['blue', 'green', 'red', 'orange', 'purple']
bars = plt.bar(products, sales, color=colors)
```



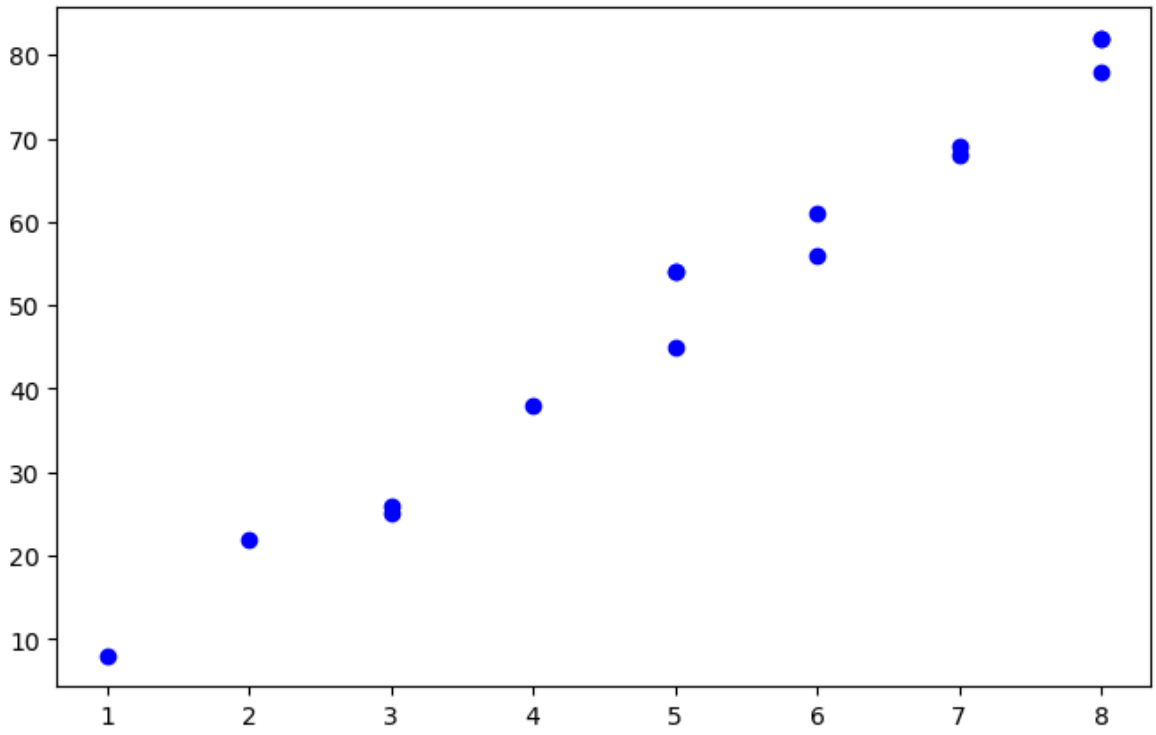
In [10]:
```
# Add labels
for bar in bars:
    plt.text(bar.get_x() + bar.get_width() / 2.0,  # Center the label on the bar
             bar.get_height() + 2,                 # Position slightly above the
             str(bar.get_height()),                # Display the height as text
             ha='center', va='bottom', fontsize=10)

plt.title('Sales of Different Products')
plt.xlabel('Products')
plt.ylabel('Sales')
plt.ylim(0, max(sales) + 20)  # Adjust y-axis to fit the labels comfortably
plt.show()
```

In [12]:
```
#3. Scatter Plot
import numpy as np
```

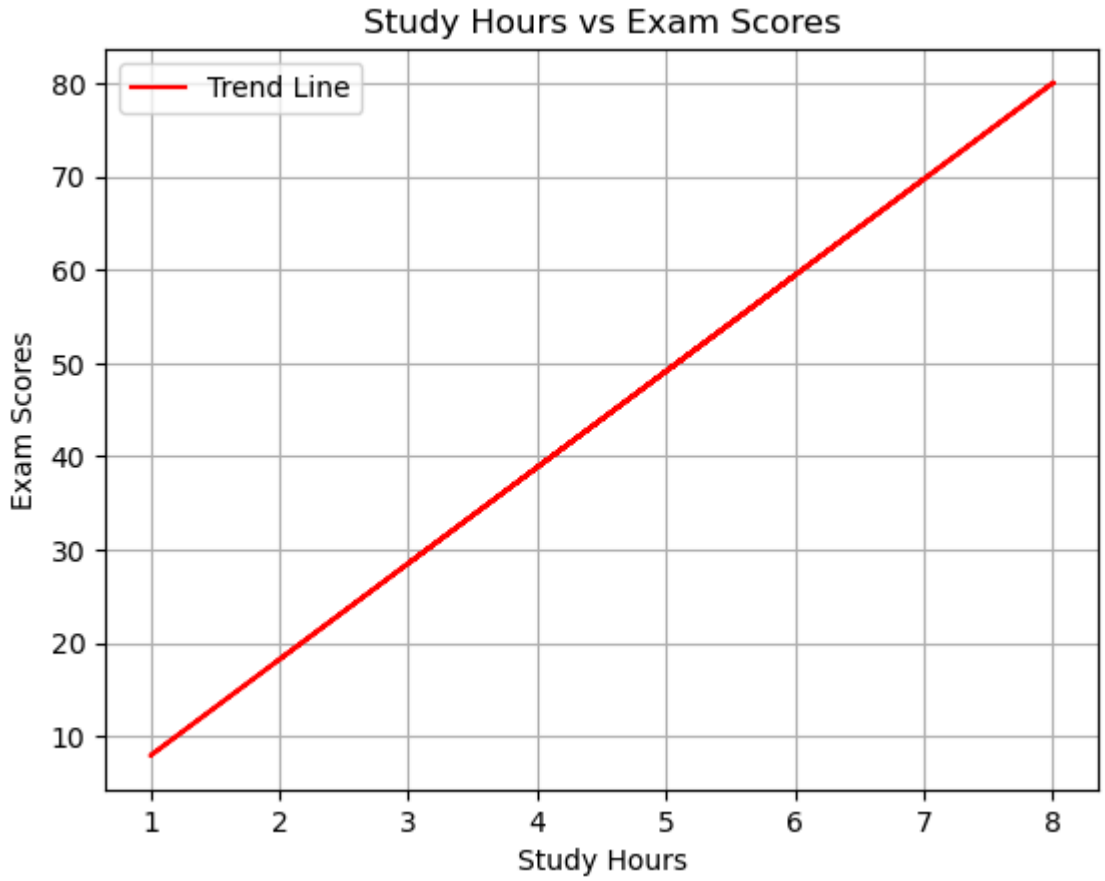
In [13]:
```
# Data
study_hours = np.random.randint(1, 10, 15)
exam_scores = study_hours * 10 + np.random.randint(-5, 5, 15)
```

In [14]:
```
# Plot
plt.figure(figsize=(8, 5))
plt.scatter(study_hours, exam_scores, color='blue', label='Data Points')
```

Out[14]: <matplotlib.collections.PathCollection at 0x28f40d49a60>

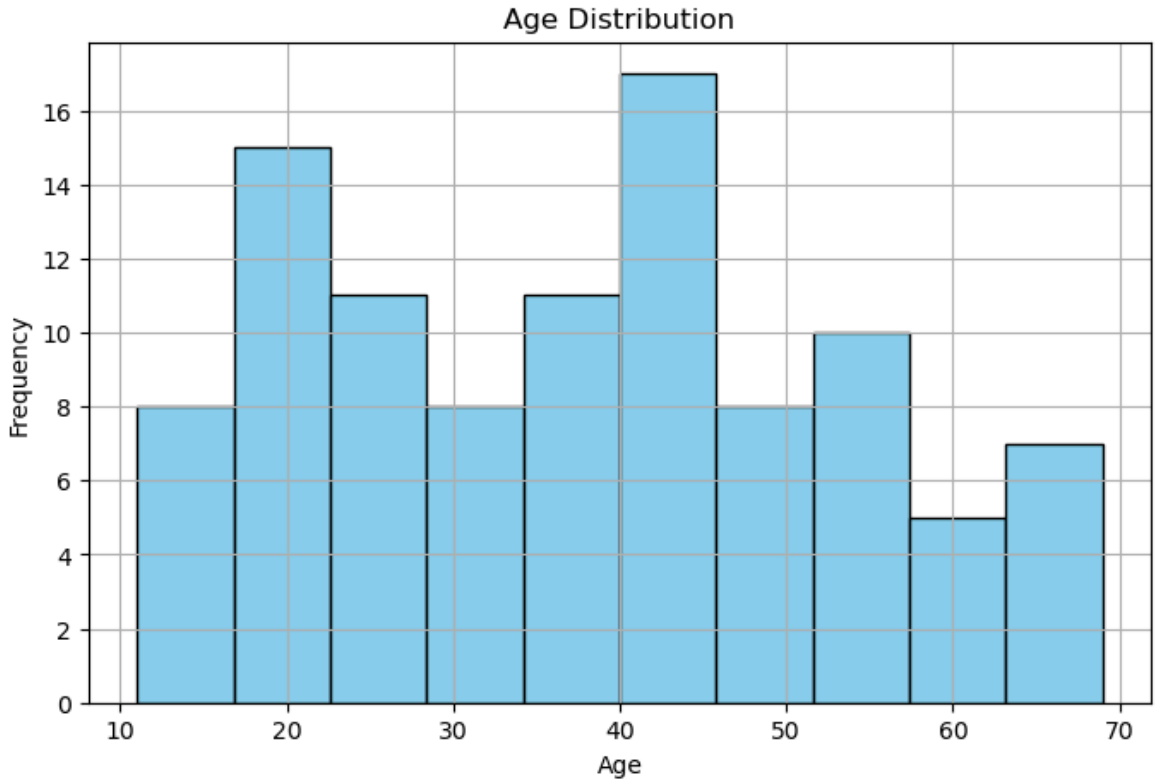


In [15]:
```
# Regression Line
m, b = np.polyfit(study_hours, exam_scores, 1)
plt.plot(study_hours, m * study_hours + b, color='red', label='Trend Line')

plt.title('Study Hours vs Exam Scores')
plt.xlabel('Study Hours')
plt.ylabel('Exam Scores')
plt.legend()
plt.grid(True)
plt.show()
```



In [17]:
```
#4. Histogram
# Data
ages = np.random.randint(10, 70, 100)
```

In [18]:
```
# Plot
plt.figure(figsize=(8, 5))
plt.hist(ages, bins=10, color='skyblue', edgecolor='black')
plt.title('Age Distribution')
plt.xlabel('Age')
plt.ylabel('Frequency')
plt.grid(True)
plt.show()
```



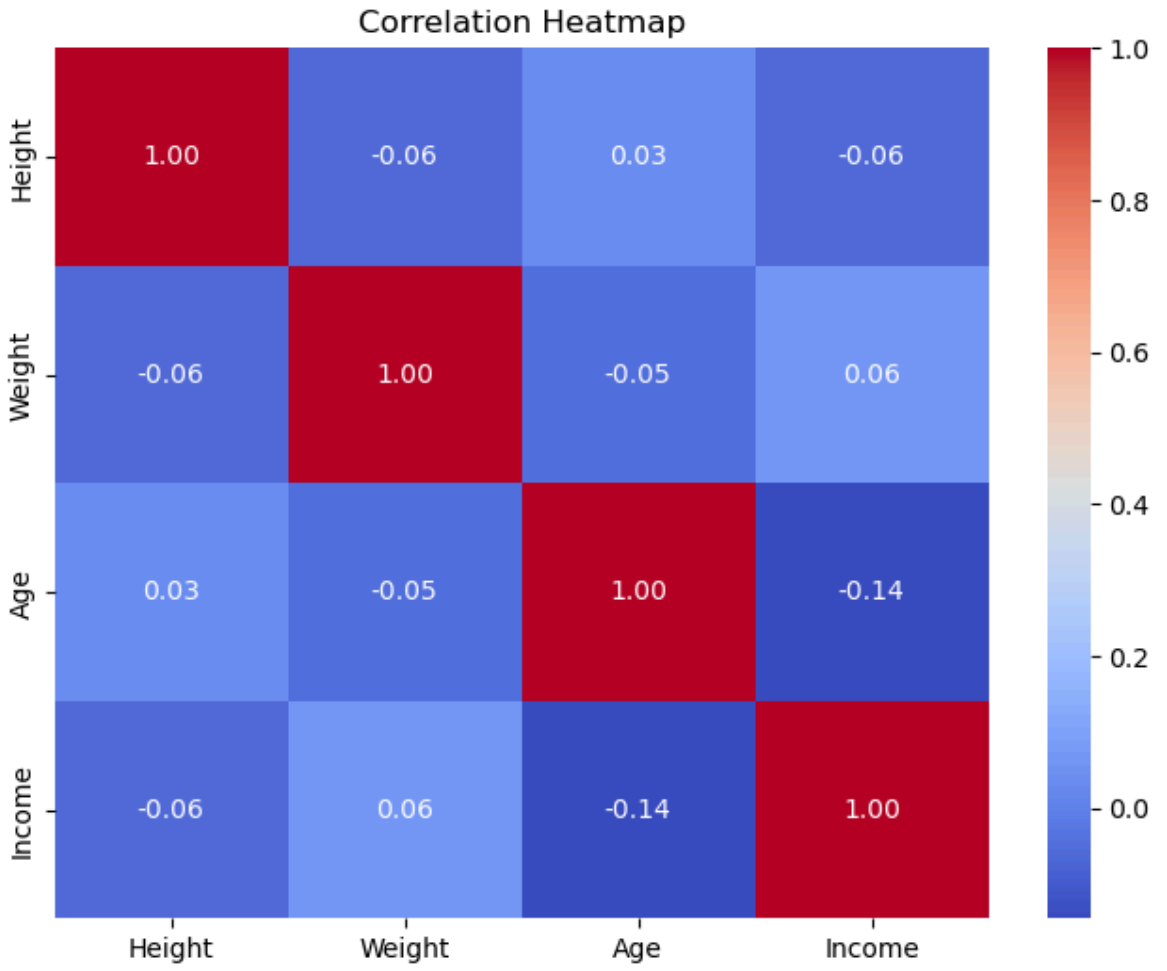
In [19]:
```
#5. Heatmap (Using Seaborn)
import seaborn as sns
import pandas as pd
```

In [20]:
```
# Data
data = {
    'Height': np.random.randint(150, 200, 50),
    'Weight': np.random.randint(50, 100, 50),
    'Age': np.random.randint(20, 60, 50),
    'Income': np.random.randint(20000, 100000, 50)
}
```

In [21]:
```
df = pd.DataFrame(data)
```

In [22]:
```
# Correlation matrix
correlation_matrix = df.corr()
```

In [23]:
```
# Plot
plt.figure(figsize=(8, 6))
sns.heatmap(correlation_matrix, annot=True, cmap='coolwarm', fmt='.2f')
plt.title('Correlation Heatmap')
plt.show()
```


Correlation Heatmap
Height
Weight
Age
Income
1.00
-0.06
0.03
-0.06
-0.06
1.00
-0.05
0.06
0.03
-0.05
1.00
-0.14
-0.06
0.06
-0.14
1.00
Height
Weight
Age
Income
1.0
0.8
0.6
0.4
0.2
0.0

In [ ]: