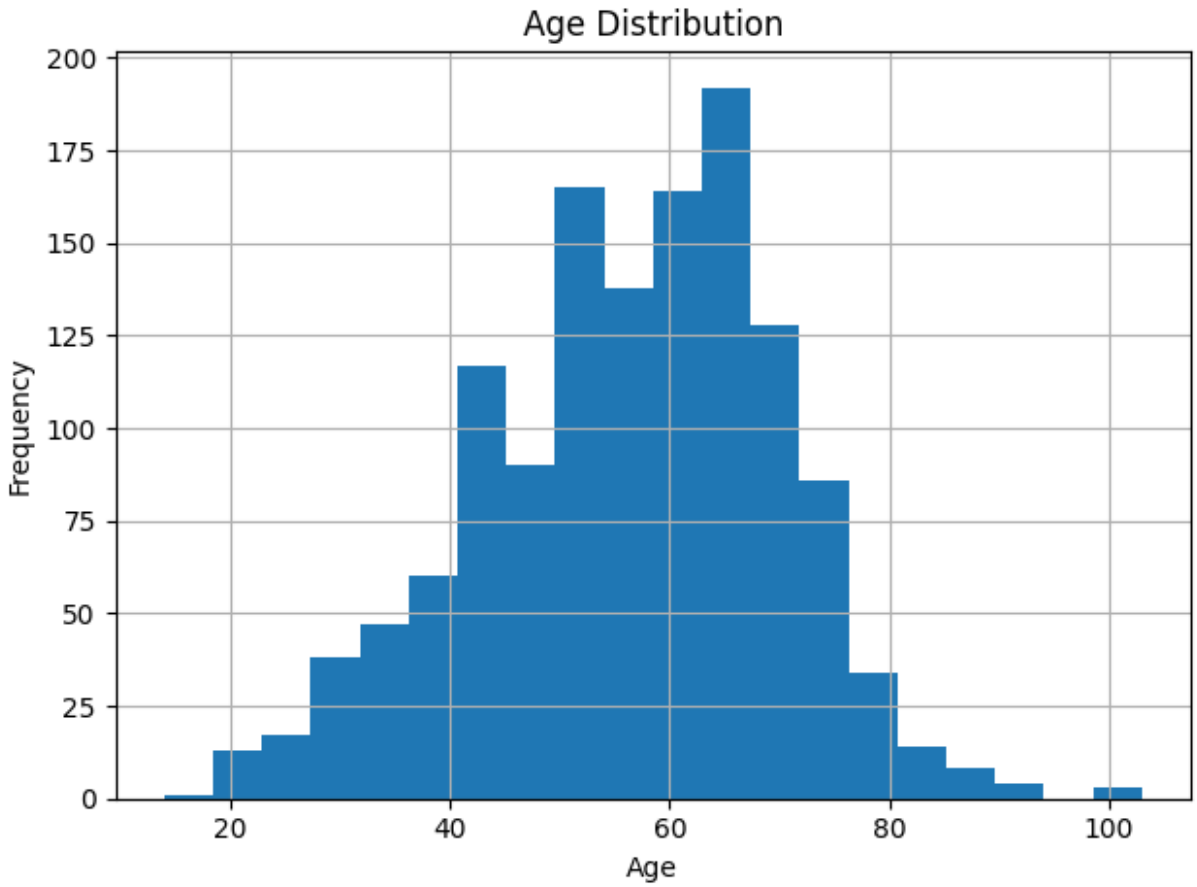
```python
import pandas as pd
import sqlite3
import matplotlib.pyplot as plt

# Paths
new_csv = './heart_data.csv'
sqlite_db = './medical_heart_data.db'

# 2)  Consume the CSV and the SQLite DB data
df_from_csv = pd.read_csv(new_csv)

with sqlite3.connect(sqlite_db) as conn:
    df_from_db = pd.read_sql_query('SELECT * FROM medical_data', conn)

# 3) Combine the two sources into a single dataframe
df_combined = pd.concat([df_from_csv, df_from_db], ignore_index=True)

# 4) Quick sanity-check
print(f'Combined rows:  {len(df_combined):5d}')
print('\nCombined dataframe preview:')
df_combined.head()
```

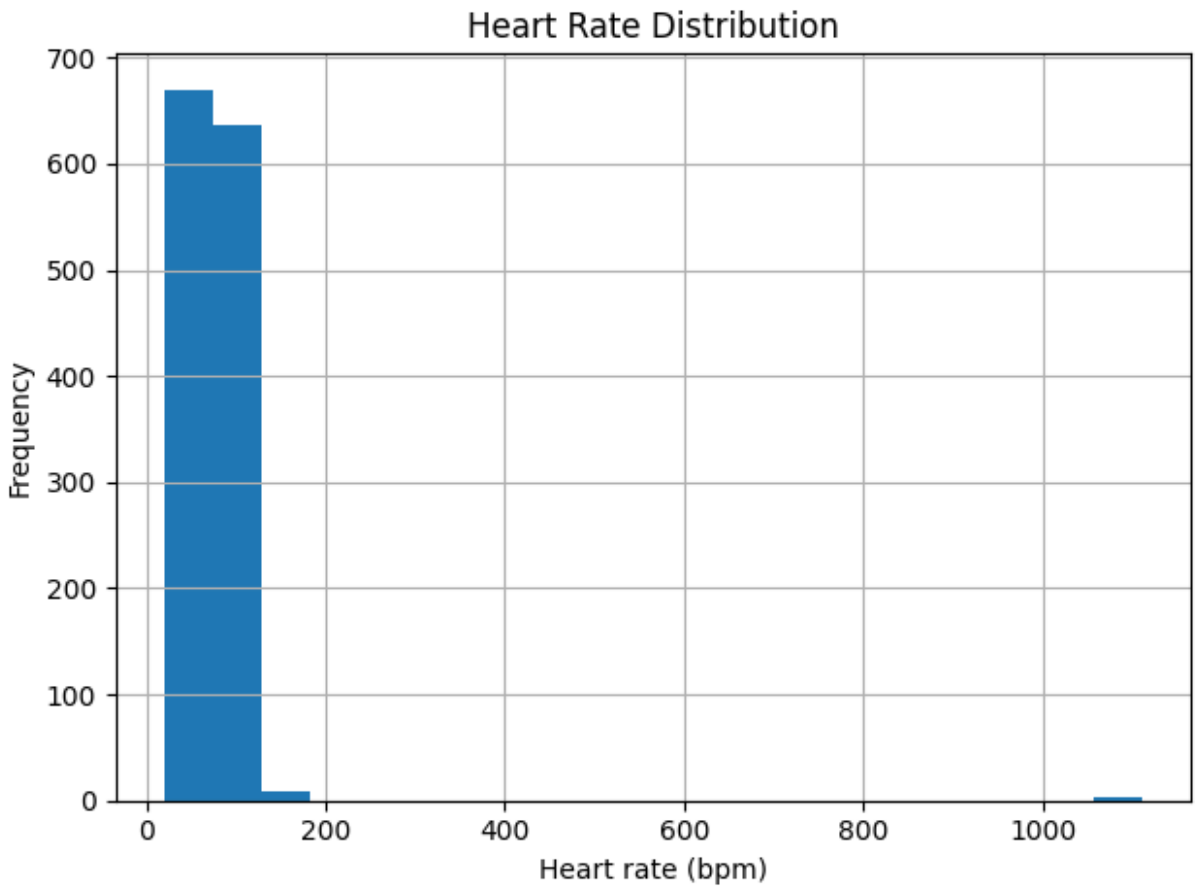
```
Combined rows:   1319

Combined dataframe preview:

   Age  Gender  Heart rate  Systolic blood pressure  Diastolic blood
pressure  \
0   64       1          66                      160
83
1   21       1          94                       98
46
2   55       1          64                      160
77
3   64       1          70                      120
55
4   55       1          64                      112
65

   Blood sugar  CK-MB  Troponin    Result
0        160.0   1.80     0.012  negative
1        296.0   6.75     1.060  positive
2        270.0   1.99     0.003  negative
3        270.0  13.87     0.122  positive
4        300.0   1.08     0.003  negative
```

```python
# 2.1 Age distribution
plt.figure()
df_combined['Age'].hist(bins=20)
plt.title('Age Distribution')
plt.xlabel('Age')
```

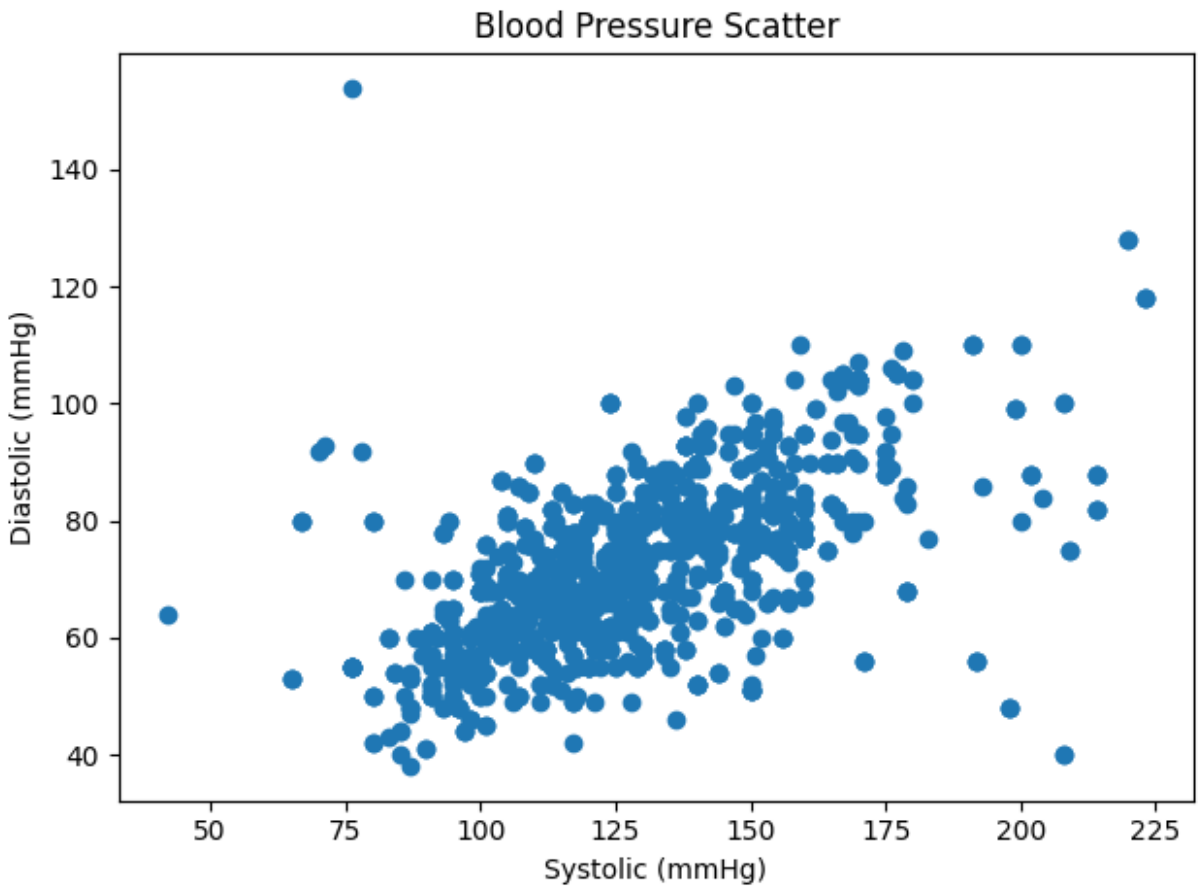
```
plt.ylabel('Frequency')
plt.tight_layout()
plt.show()
```



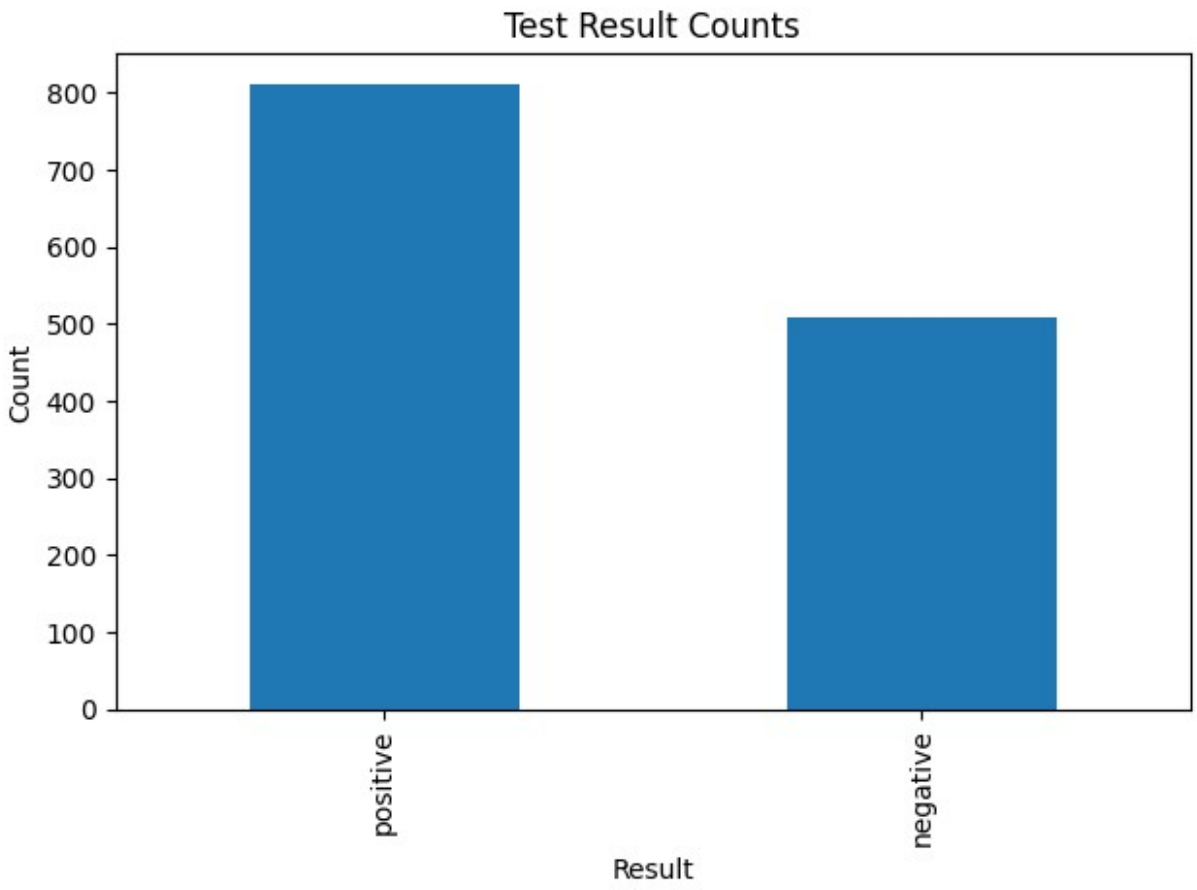

```
# 2.2 Heart-rate distribution
plt.figure()
df_combined['Heart rate'].hist(bins=20)
plt.title('Heart Rate Distribution')
plt.xlabel('Heart rate (bpm)')
plt.ylabel('Frequency')
plt.tight_layout()
plt.show()
plt.show()
```




```
# 2.3 Systolic vs Diastolic scatter
plt.figure()
plt.scatter(df_combined['Systolic blood pressure'],
df_combined['Diastolic blood pressure'])
plt.title('Blood Pressure Scatter')
plt.xlabel('Systolic (mmHg)')
plt.ylabel('Diastolic (mmHg)')
plt.tight_layout()
plt.show()
```




```
# 2.4 Result count bar-chart
plt.figure()
df_combined['Result'].value_counts().plot(kind='bar')
plt.title('Test Result Counts')
plt.xlabel('Result')
plt.ylabel('Count')
plt.tight_layout()
```


Test Result Counts
800
700
600
500
400
300
200
100
0
Count
positive
negative
Result