File - main

```
   Pregnancies  Glucose  BloodPressure  ...  DiabetesPedigreeFunction  Age  Outcome
0            6      148             72  ...                     0.627   50        1
1            1       85             66  ...                     0.351   31        0
2            8      183             64  ...                     0.672   32        1
3            1       89             66  ...                     0.167   21        0
4            0      137             40  ...                     2.288   33        1

[5 rows x 9 columns]
(768, 9)
Index(['Pregnancies', 'Glucose', 'BloodPressure', 'SkinThickness', 'Insulin',
       'BMI', 'DiabetesPedigreeFunction', 'Age', 'Outcome'],
      dtype='object')
Pregnancies                 int64
Glucose                     int64
BloodPressure               int64
SkinThickness               int64
Insulin                     int64
BMI                       float64
DiabetesPedigreeFunction    float64
Age                         int64
Outcome                     int64
dtype: object
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 768 entries, 0 to 767
Data columns (total 9 columns):
 #   Column                   Non-Null Count  Dtype
---  ------                   --------------  -----
 0   Pregnancies              768 non-null    int64
 1   Glucose                  768 non-null    int64
 2   BloodPressure            768 non-null    int64
 3   SkinThickness            768 non-null    int64
 4   Insulin                  768 non-null    int64
 5   BMI                      768 non-null    float64
 6   DiabetesPedigreeFunction  768 non-null    float64
 7   Age                      768 non-null    int64
 8   Outcome                  768 non-null    int64
dtypes: float64(2), int64(7)
memory usage: 54.1 KB
None
       Pregnancies     Glucose  ...         Age     Outcome
count   768.000000  768.000000  ...  768.000000  768.000000
mean      3.845052  120.894531  ...   33.240885    0.348958
std       3.369578   31.972618  ...   11.760232    0.476951
min       0.000000    0.000000  ...   21.000000    0.000000
25%       1.000000   99.000000  ...   24.000000    0.000000
50%       3.000000  117.000000  ...   29.000000    0.000000
75%       6.000000  140.250000  ...   41.000000    1.000000
max      17.000000  199.000000  ...   81.000000    1.000000

[8 rows x 9 columns]
35
5
227
374
11
   Pregnancies  Glucose  SkinThickness     Insulin   BMI  Age  Outcome
0            6    148.0      35.000000   79.799479  33.6   50        1
1            1     85.0      29.000000   79.799479  26.6   31        0
2            8    183.0      20.536458   79.799479  23.3   32        1
3            1     89.0      23.000000   94.000000  28.1   21        0
4            0    137.0      35.000000  168.000000  43.1   33        1
<class 'pandas.core.frame.DataFrame'>
Int64Index: 392 entries, 3 to 765
Data columns (total 9 columns):
 #   Column                   Non-Null Count  Dtype
---  ------                   --------------  -----
 0   Pregnancies              392 non-null    int64
 1   Glucose                  392 non-null    float64
 2   BloodPressure            392 non-null    float64
 3   SkinThickness            392 non-null    float64
 4   Insulin                  392 non-null    float64
 5   BMI                      392 non-null    float64
 6   DiabetesPedigreeFunction  392 non-null    float64
 7   Age                      392 non-null    int64
 8   Outcome                  392 non-null    int64
dtypes: float64(6), int64(3)
memory usage: 30.6 KB
```

File - main

None

	Pregnancies	Glucose	Insulin	BMI	Age	Outcome
0	0.260870	0.131714	0.336317	0.242967	0.000000	0.0
1	0.000000	0.704604	0.673913	0.920716	0.693095	1.0
2	0.599744	0.031969	0.303069	0.401535	0.450128	1.0
3	0.461637	0.996164	0.984655	0.367008	0.953964	1.0
4	0.260870	0.976982	1.000000	0.342711	0.987212	1.0

	Pregnancies	Glucose	BloodPressure	...	BMI	DiabetesPedigreeFunction	Age
0	6	148	72	...	33.6	0.627	50
1	1	85	66	...	26.6	0.351	31
2	8	183	64	...	23.3	0.672	32
3	1	89	66	...	28.1	0.167	21
4	0	137	40	...	43.1	2.288	33

[5 rows x 8 columns]

0 1
1 0
2 1
3 0
4 1
Name: Outcome, dtype: int64

Best algorithm: auto
Best metric: manhattan
Best n_neighbors: 11
KNearestNeighborhood Classification Report is:

	precision	recall	f1-score	support
0	0.74	0.83	0.78	99
1	0.60	0.47	0.53	55
accuracy			0.70	154
macro avg	0.67	0.65	0.66	154
weighted avg	0.69	0.70	0.69	154

F1:
0.5306122448979591

Precision score is:
0.6046511627906976

Recall score is:
0.4727272727272727

Confusion Matrix:
[[82 17]
[29 26]]

Best kernel: rbf
Best C: 10
Support Vector Machine Classification Report is:

	precision	recall	f1-score	support
0	0.73	0.88	0.80	99
1	0.66	0.42	0.51	55
accuracy			0.71	154
macro avg	0.69	0.65	0.65	154
weighted avg	0.70	0.71	0.70	154

F1:
0.5111111111111111

Precision score is:
0.6571428571428571

Recall score is:
0.41818181818181815

Confusion Matrix:
[[87 12]
[32 23]]

Fitting 30 folds for each of 80 candidates, totalling 2400 fits
Best max_depth: 5

File - main

Best min_samples_leaf: 25
Best criterion: entropy
Decision Tree Classification Report is:

	precision	recall	f1-score	support
0	0.76	0.79	0.77	99
1	0.59	0.55	0.57	55
accuracy			0.70	154
macro avg	0.67	0.67	0.67	154
weighted avg	0.70	0.70	0.70	154

F1:
0.5660377358490566

Precision score is:
0.5882352941176471

Recall score is:
0.5454545454545454

Confusion Matrix:
[[78 21]
[25 30]]

Best n_estimators: 250
Best min_samples_leaf: 5
Random Forest Classification Report is:

	precision	recall	f1-score	support
0	0.77	0.86	0.81	99
1	0.68	0.55	0.61	55
accuracy			0.75	154
macro avg	0.73	0.70	0.71	154
weighted avg	0.74	0.75	0.74	154

F1:
0.6060606060606061

Precision score is:
0.6818181818181818

Recall score is:
0.5454545454545454

Confusion Matrix:
[[85 14]
[25 30]]

	Pregnancies	Glucose	SkinThickness	Insulin	BMI	Age
0	6	148.0	35.000000	79.799479	33.6	50
1	1	85.0	29.000000	79.799479	26.6	31
2	8	183.0	20.536458	79.799479	23.3	32
3	1	89.0	23.000000	94.000000	28.1	21
4	0	137.0	35.000000	168.000000	43.1	33

0 1
1 0
2 1
3 0
4 1
Name: Outcome, dtype: int64

Best algorithm: auto
Best metric: manhattan
Best n_neighbors: 17
KNearestNeighborhood Classification Report is:

	precision	recall	f1-score	support
0	0.76	0.83	0.79	99
1	0.63	0.53	0.57	55
accuracy			0.72	154
macro avg	0.69	0.68	0.68	154
weighted avg	0.71	0.72	0.71	154

F1:
0.5742574257425742

Precision score is:
0.6304347826086957

Recall score is:
0.5272727272727272

Confusion Matrix:
[[82 17]
[26 29]]

Best kernel: rbf
Best C: 10
Support Vector Machine Classification Report is:

	precision	recall	f1-score	support
0	0.74	0.89	0.81	99
1	0.69	0.44	0.53	55
accuracy			0.73	154
macro avg	0.71	0.66	0.67	154
weighted avg	0.72	0.73	0.71	154

F1:
0.5333333333333333

Precision score is:
0.6857142857142857

Recall score is:
0.43636363636363634

Confusion Matrix:
[[88 11]
[31 24]]

Fitting 30 folds for each of 80 candidates, totalling 2400 fits
Best max_depth: 5
Best min_samples_leaf: 15
Best criterion: entropy
Decision Tree Classification Report is:

	precision	recall	f1-score	support
0	0.78	0.79	0.78	99
1	0.61	0.60	0.61	55
accuracy			0.72	154
macro avg	0.70	0.69	0.69	154
weighted avg	0.72	0.72	0.72	154

F1:
0.6055045871559633

Precision score is:
0.6111111111111112

Recall score is:
0.6

Confusion Matrix:
[[78 21]
[22 33]]

Best n_estimators: 250
Best min_samples_leaf: 5
Random Forest Classification Report is:

	precision	recall	f1-score	support
0	0.78	0.81	0.80	99
1	0.63	0.60	0.62	55
accuracy			0.73	154

```
   macro avg       0.71      0.70      0.71       154
weighted avg       0.73      0.73      0.73       154


F1:
0.616822429906542

Precision score is:
0.6346153846153846

Recall score is:
0.6

Confusion Matrix:
[[80 19]
[22 33]]
   Pregnancies   Glucose   Insulin       BMI       Age
0     0.260870  0.131714  0.336317  0.242967  0.000000
1     0.000000  0.704604  0.673913  0.920716  0.693095
2     0.599744  0.031969  0.303069  0.401535  0.450128
3     0.461637  0.996164  0.984655  0.367008  0.953964
4     0.260870  0.976982  1.000000  0.342711  0.987212
0    0.0
1    1.0
2    1.0
3    1.0
4    1.0
Name: Outcome, dtype: float64
----------------------------------------------------
Best algorithm: auto
Best metric: manhattan
Best n_neighbors: 7
KNearestNeighborhood Classification Report is:
              precision    recall  f1-score   support

         0.0       0.79      0.85      0.81        52
         1.0       0.65      0.56      0.60        27

    accuracy                           0.75        79
   macro avg       0.72      0.70      0.71        79
weighted avg       0.74      0.75      0.74        79


F1:
0.6

Precision score is:
0.6521739130434783

Recall score is:
0.5555555555555556

Confusion Matrix:
[[44  8]
[12 15]]
----------------------------------------------------
Best kernel: rbf
Best C: 10
Support Vector Machine Classification Report is:
              precision    recall  f1-score   support

         0.0       0.83      0.87      0.85        52
         1.0       0.72      0.67      0.69        27

    accuracy                           0.80        79
   macro avg       0.78      0.77      0.77        79
weighted avg       0.79      0.80      0.80        79


F1:
0.6923076923076923

Precision score is:
0.72

Recall score is:
0.6666666666666666
```

File - main

```
Confusion Matrix:
[[45  7]
 [ 9 18]]
---------------------------------------------------
Fitting 30 folds for each of 80 candidates, totalling 2400 fits
Best max_depth: 5
Best min_samples_leaf: 15
Best criterion: entropy
Decision Tree Classification Report is:
              precision    recall  f1-score   support

         0.0       0.82      0.88      0.85        52
         1.0       0.74      0.63      0.68        27

    accuracy                           0.80        79
   macro avg       0.78      0.76      0.77        79
weighted avg       0.79      0.80      0.79        79


F1:
0.68

Precision score is:
0.7391304347826086

Recall score is:
0.6296296296296297

Confusion Matrix:
[[46  6]
 [10 17]]
---------------------------------------------------
Best n_estimators: 250
Best min_samples_leaf: 5
Random Forest Classification Report is:
              precision    recall  f1-score   support

         0.0       0.84      0.88      0.86        52
         1.0       0.75      0.67      0.71        27

    accuracy                           0.81        79
   macro avg       0.79      0.78      0.78        79
weighted avg       0.81      0.81      0.81        79


F1:
0.7058823529411765

Precision score is:
0.75

Recall score is:
0.6666666666666666

Confusion Matrix:
[[46  6]
 [ 9 18]]

Process finished with exit code 0
```