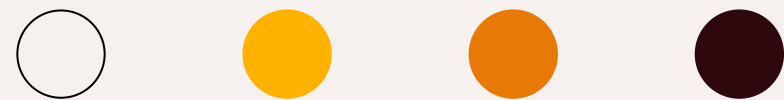
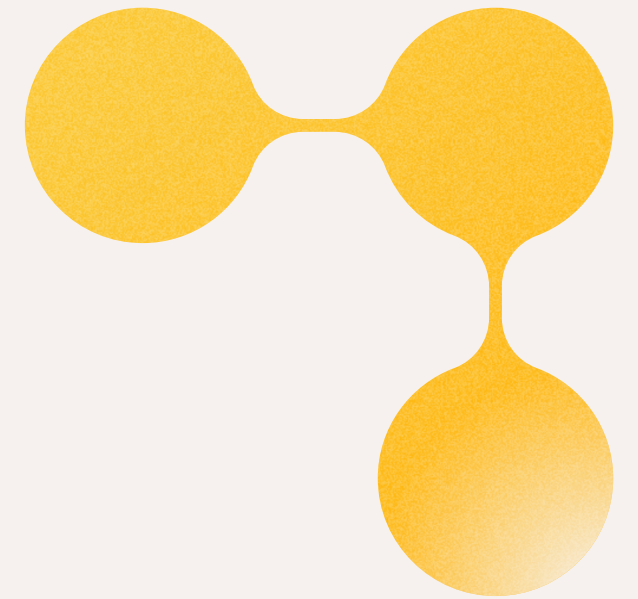
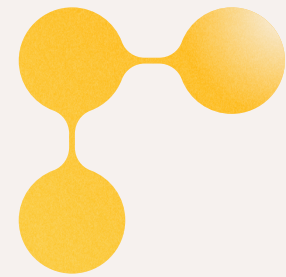


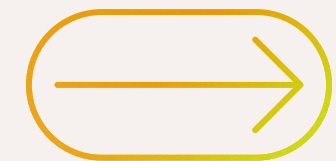
HEART FAILURE CLINICAL RECORDS



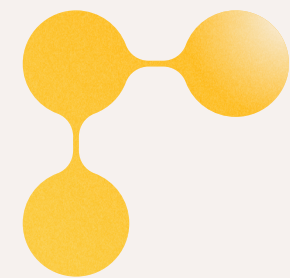
ABOUT DATASET



This dataset contains clinical records related to heart failure, a medical condition characterized by the heart's inability to pump enough blood to meet the body's needs. Heart failure is a significant public health issue worldwide, impacting quality of life and requiring extensive medical intervention.



ABOUT DATASET



The dataset comprises clinical records of 299 patients with heart failure who were treated at a hospital in Porto, Spain, during the years 2015 and 2016. Each patient's record includes 13 different clinical features, including biological measurements such as age, gender, blood pressure, serum creatinine, and anemia status, as well as clinical parameters like heart rate, ejection fraction, and smoking status.

299

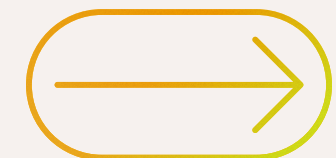
Instances

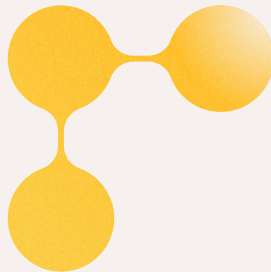
0

No Missing Values

13

Features





4

Feature	Description	Possible Values
Age	Age of the patient.	Integer
Anaemia	Indicates whether the patient has anemia or not.	0: No, 1: Yes
High Blood Pressure	Indicates whether the patient has high blood pressure or not.	0: No, 1: Yes
Creatinine Phosphokinase (CPK)	Level of the CPK enzyme in the blood (mcg/L).	Integer (mcg/L)
Serum Creatinine	Level of serum creatinine in the blood (mg/dL).	Float (mg/dL)
Ejection Fraction	Percentage of blood leaving the heart at each contraction (%).	Percentage (%)

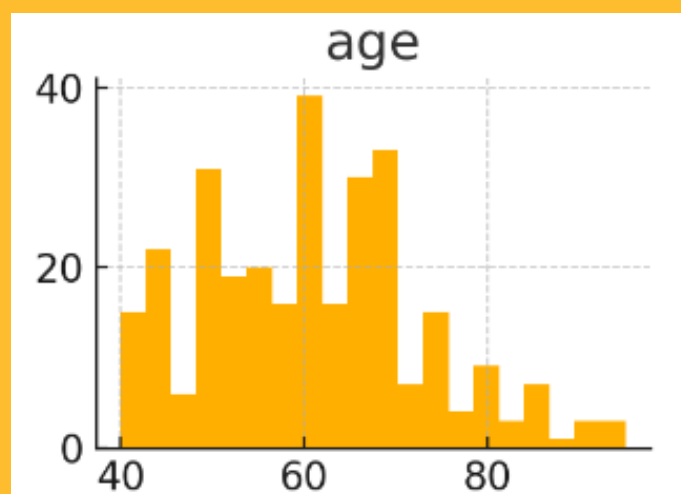


Platelets	Number of platelets in the blood (kiloyu/mm ³).	Integer (kiloyu/mm ³)
CPK-MB	Level of the CPK-MB enzyme in the blood (mcg/L).	Integer (mcg/L)
Heart Rate	Heart rate of the patient (beats per minute).	Integer (bpm)
Angiotensin Converting Enzyme Inhibitor	Indicates whether the patient is on an angiotensin-converting enzyme inhibitor treatment or not.	0: No, 1: Yes
Beta-blocker	Indicates whether the patient is on a beta-blocker treatment or not.	0: No, 1: Yes
Smoking	Indicates whether the patient is a smoker or not.	0: No, 1: Yes
Hospitalization	Indicates whether the patient was hospitalized due to heart failure later or not.	0: No, 1: Yes

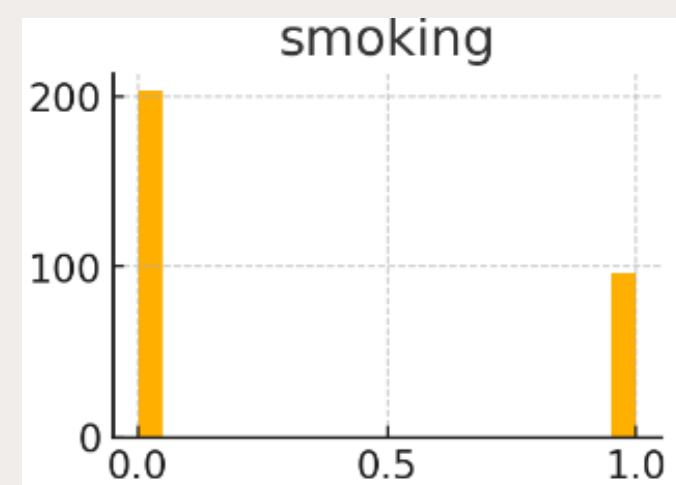


HISTOGRAMS

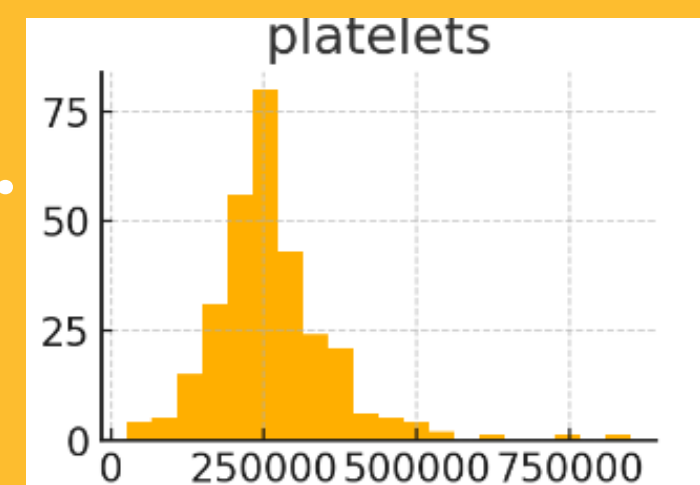
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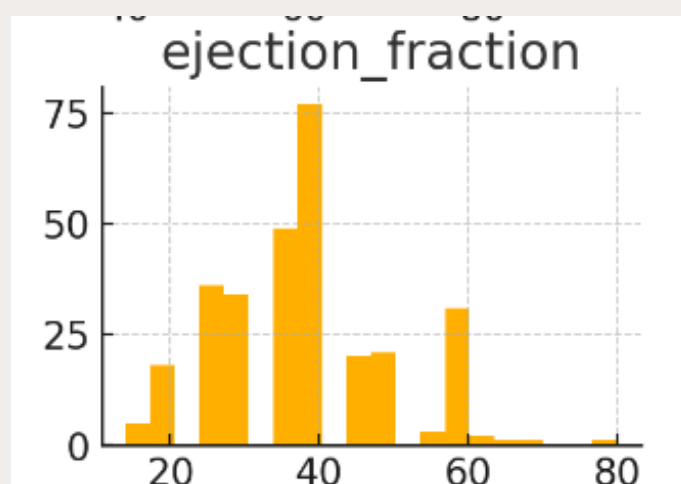
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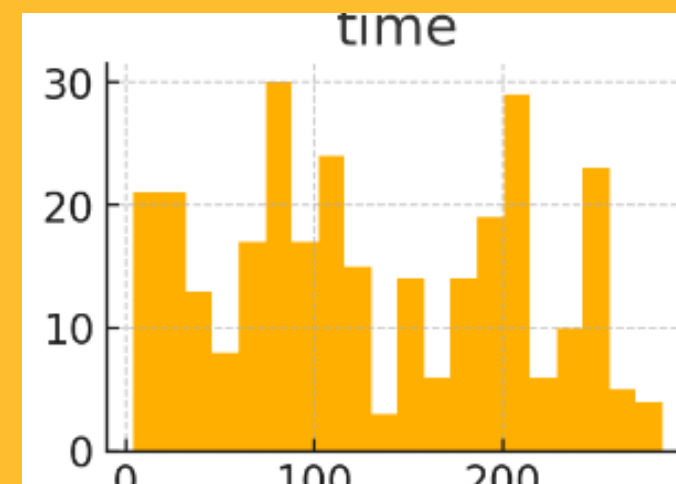
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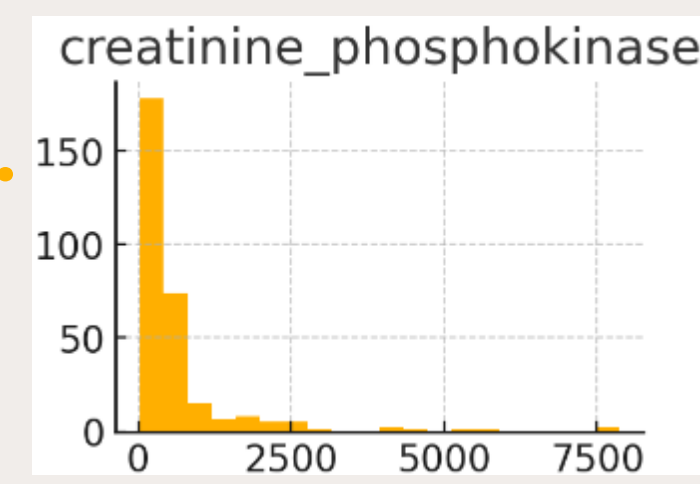
04.



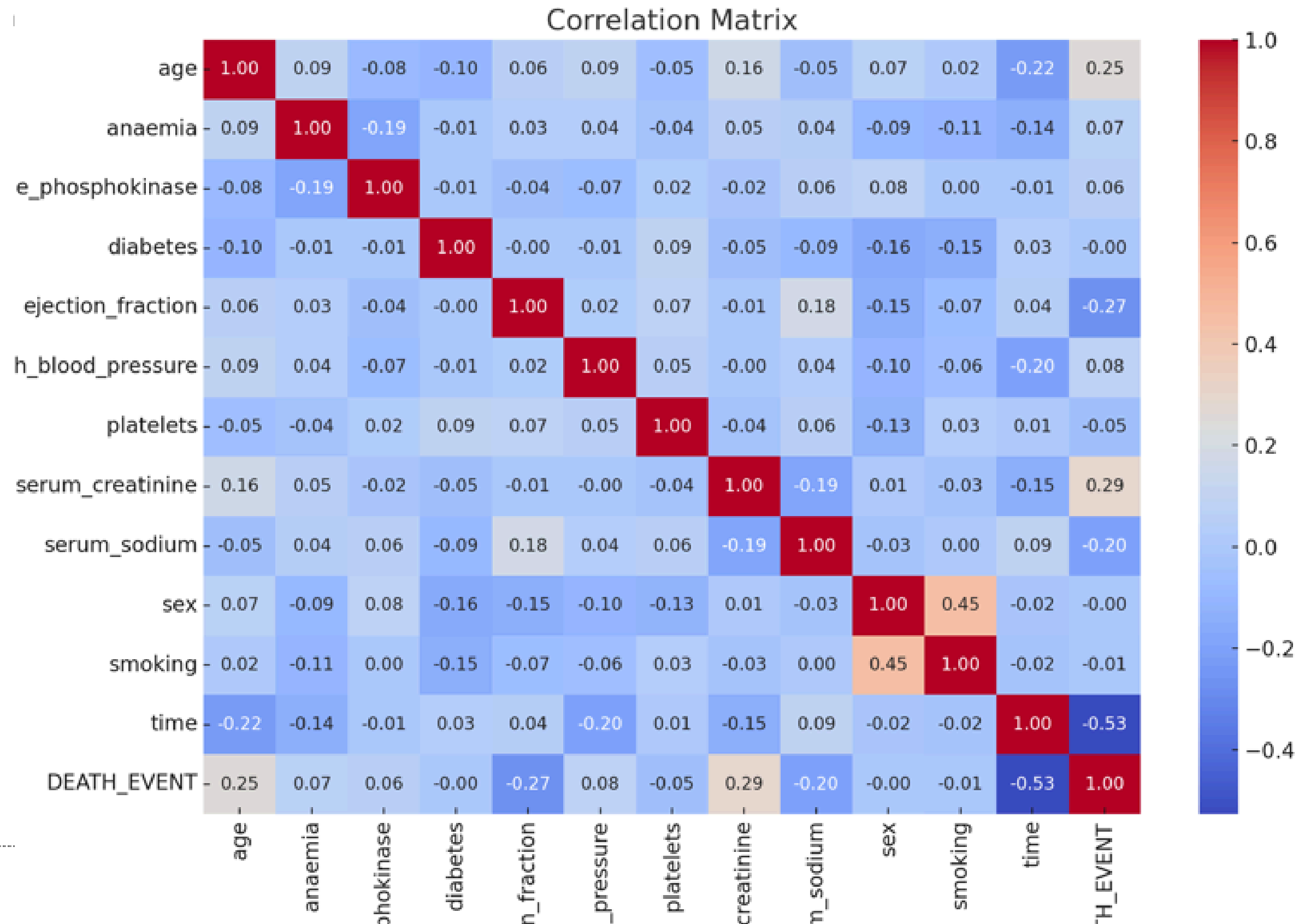
05.



06.



CORRELATION MATRIX

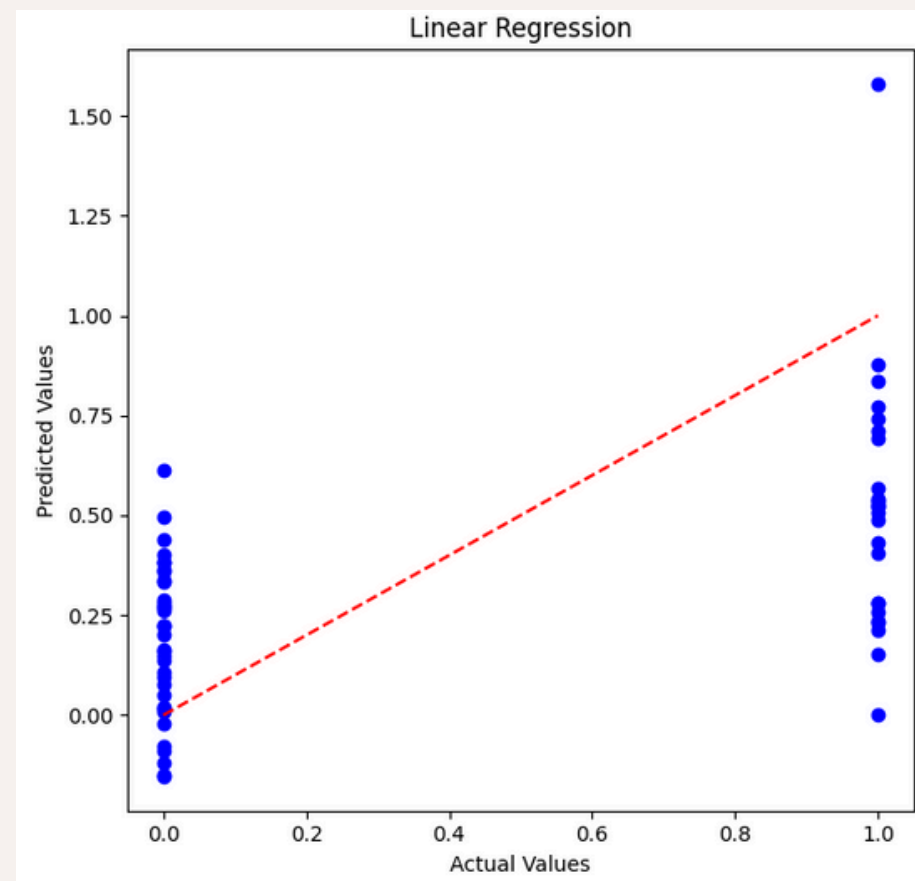




REGRESSIONS

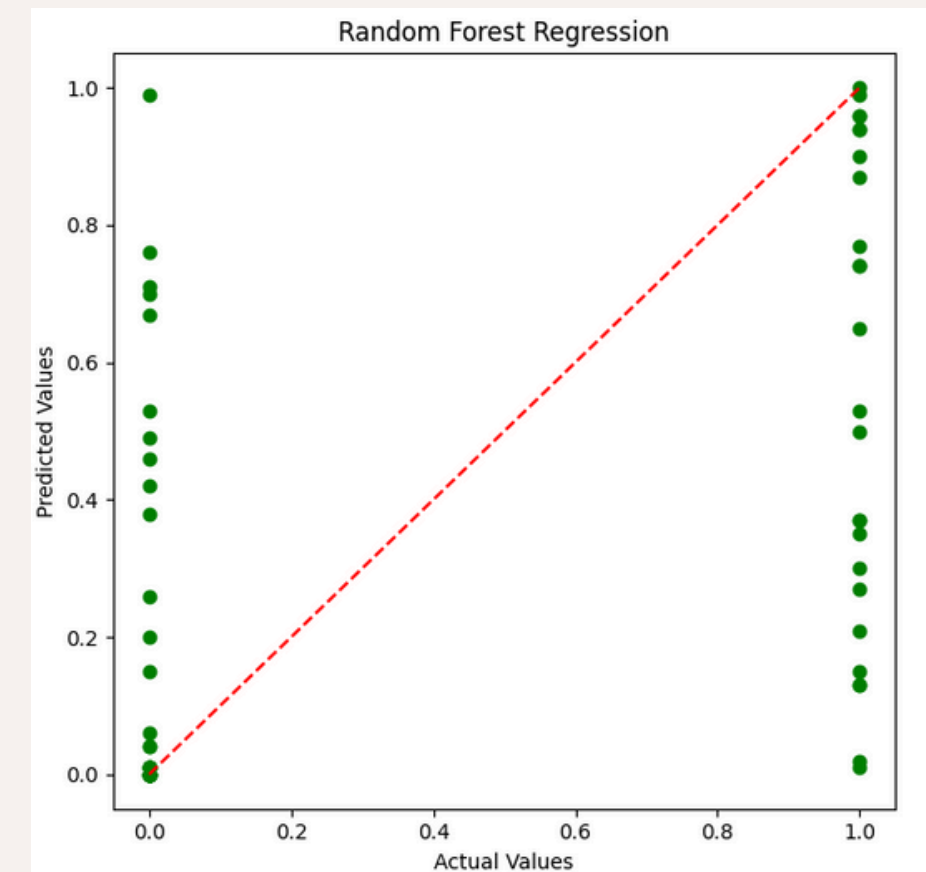
LINEAR REGRESSION

Linear Regression MSE: 0.1787434117127499



RANDOM FOREST REGRESSION

Random Forest Regression MSE: 0.20209833333333333





CLASSIFICATIONS

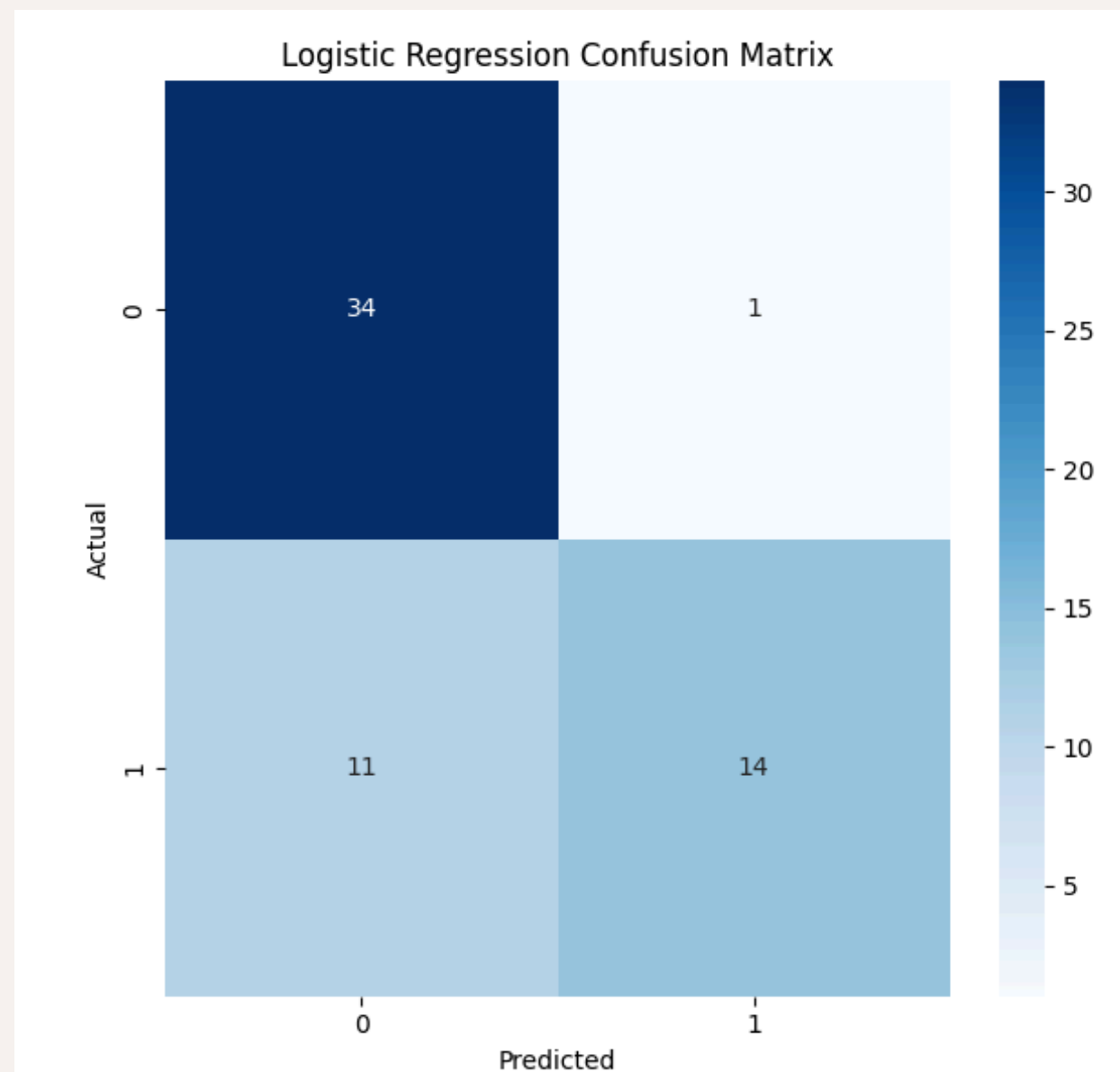
LOGISTIC REGRESSION

Logistic Regression Accuracy: 0.8

Logistic Regression Precision: 0.9333333333333333

Logistic Regression Recall: 0.56

Logistic Regression F1-Score: 0.70000000000000000001



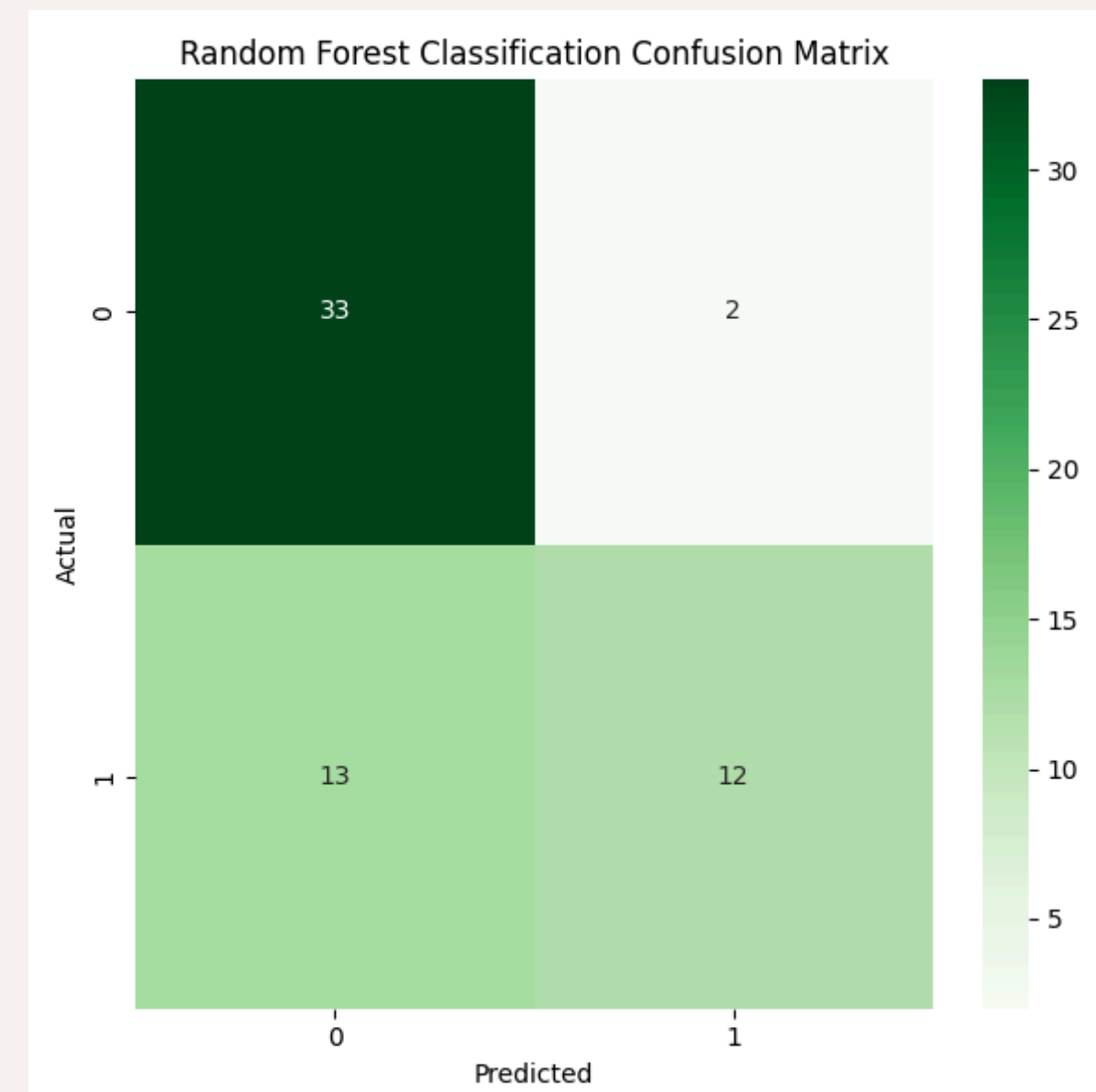
RANDOM FOREST CLASSIFICATION

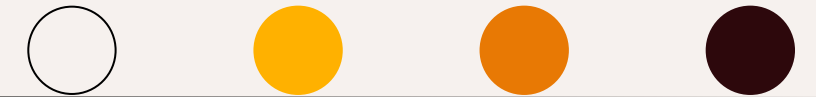
Random Forest Classification Accuracy: 0.7

Random Forest Classification Precision: 0.7333333333333333

Random Forest Classification Recall: 0.44

Random Forest Classification F1-Score: 0.5499999999999999





CLUSTERING

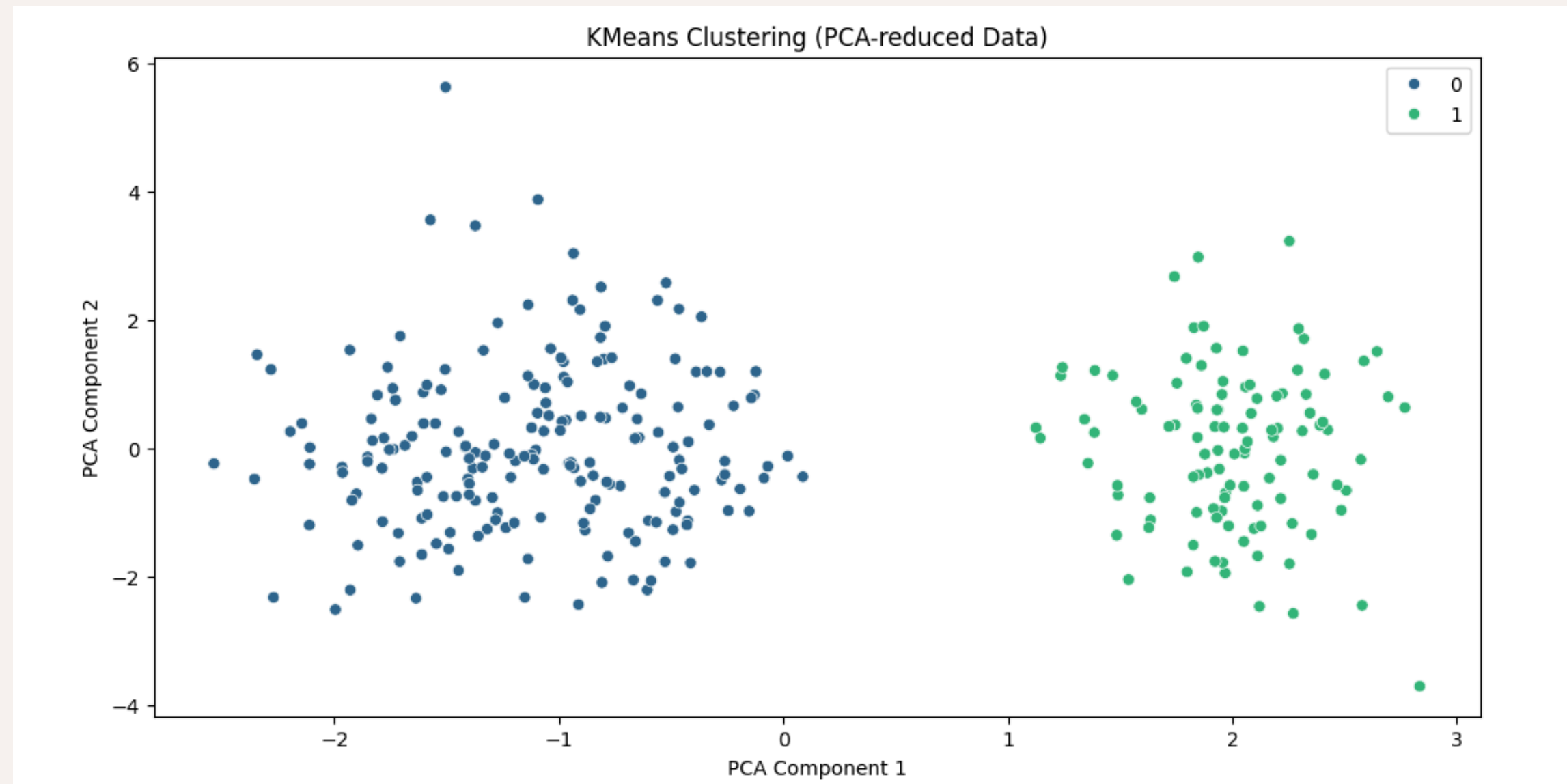
K MEANS CLUSTERING

KMeans Clustering Silhouette Score: 0.18883554360924715

Cluster

0 192

1 107





THANK YOU