1.1 Please see python program

1.2 Please see python program

1.3.a CPK levels and serum sodium has the highest correlation in the surviving patients

1.3.b serum sodium with serum\_creatinnine has the lowest correlation in the surviving patients

1.3.c serum sodium and platelets has the highest correlation for deceased patients

1.3.d serum creatinnine and serum sodium has the lowest correlation for deceased patients

1.3.e results are very different between m0 and m1 where m1 has many postive correlations and m0 has many negative correlations

2 Please see python program

3

loss function for linear: 133.0705870179978

loss function for quadratic: 135.98257303316836

loss function for cubic: 135.2028692678449

loss function for GLM\_1: 132.87370607293298

loss function for GLM\_2: 141.1165997705449

loss function for linear: 44.85216850356206

loss function for quadratic: 44.77588771121759

loss function for cubic: 48.95618821877799

loss function for GLM\_1: 44.60868945048049

loss function for GLM\_2: 43.70152945464571

3.1

the GLM\_1 (y = alogx + b) has the best SSE for deceased patients while GLM\_2 (logy = alogx + b) has the best SSE for survived patients

3.2

the GLM\_2 (logy = alogx + b) has the worst SSE for deceased patients while cubic (y = ax^3 + bx^2 + cx + d) has the worst SSE for survived patients