**EENG 860-Assignment 2-G5**

**Due date: February 24, 2023**

Suppose that you are the administrator of a university department and you want to determine each applicant's chance of admission based on their results on two exams. You have historical data from previous applicants that you can use as a training, where the first and second columns are the scores for first and second exam, respectively and the third column shows the admission result:

1=Admitted, 0=not-admitted.

34.6237 78.0247 0

30.2867 43.8950 0

35.8474 72.9022 0

45.0833 56.3164 0

95.8616 38.2253 0

75.0137 30.6033 0

39.5383 76.0368 0

67.9469 46.6786 0

67.3720 42.8384 0

50.5348 48.8558 0

34.2121 44.2095 0

93.1144 38.8007 0

61.8302 50.2561 0

38.7858 64.9957 0

52.1080 63.1276 0

40.2369 71.1677 0

54.6351 52.2139 0

33.9155 98.8694 0

74.7893 41.5734 0

34.1836 75.2377 0

51.5477 46.8563 0

82.3688 40.6183 0

51.0478 45.8227 0

62.2227 52.0610 0

34.5245 60.3963 0

50.2865 49.8045 0

49.5867 59.8090 0

32.5772 95.5985 0

35.2861 47.0205 0

56.2538 39.2615 0

60.1826 86.3086 1.0000

79.0327 75.3444 1.0000

61.1067 96.5114 1.0000

75.0247 46.5540 1.0000

76.0988 87.4206 1.0000

84.4328 43.5334 1.0000

82.3071 76.4820 1.0000

69.3646 97.7187 1.0000

53.9711 89.2074 1.0000

69.0701 52.7405 1.0000

70.6615 92.9271 1.0000

76.9788 47.5760 1.0000

89.6768 65.7994 1.0000

77.9241 68.9724 1.0000

62.2710 69.9545 1.0000

80.1902 44.8216 1.0000

61.3793 72.8079 1.0000

85.4045 57.0520 1.0000

52.0454 69.4329 1.0000

64.1770 80.9081 1.0000

83.9024 56.3080 1.0000

94.4434 65.5689 1.0000

77.1930 70.4582 1.0000

97.7716 86.7278 1.0000

62.0731 96.7688 1.0000

91.5650 88.6963 1.0000

79.9448 74.1631 1.0000

99.2725 60.9990 1.0000

90.5467 43.3906 1.0000

97.6456 68.8616 1.0000

74.2487 69.8246 1.0000

71.7965 78.4536 1.0000

75.3956 85.7599 1.0000

40.4576 97.5352 1.0000

80.2796 92.1161 1.0000

66.7467 60.9914 1.0000

64.0393 78.0317 1.0000

72.3465 96.2276 1.0000

60.4579 73.0950 1.0000

58.8410 75.8584 1.0000

99.8279 72.3693 1.0000

47.2643 88.4759 1.0000

50.4582 75.8099 1.0000

88.9139 69.8038 1.0000

94.8345 45.6943 1.0000

67.3193 66.5894 1.0000

57.2387 59.5143 1.0000

80.3668 90.9601 1.0000

68.4685 85.5943 1.0000

75.4777 90.4245 1.0000

Predict the result for the following students using KNN algorithm. Compare your prediction with true ones in the third column. Provide the confusion matrix, sensitivity, specificity, total accuracy, F1-score, Roc curve, and area under curve

30.0588 49.5930 0

44.6683 66.4501 0

66.5609 41.0921 0

49.0726 51.8832 0

32.7228 43.3072 0

60.4556 42.5084 0

82.2267 42.7199 0

42.0755 78.8448 0

52.3480 60.7695 0

55.4822 35.5707 0

99.8279 72.3693 1.0000

47.2643 88.4759 1.0000

50.4582 75.8099 1.0000

88.9139 69.8038 1.0000

94.8345 45.6943 1.0000

67.3193 66.5894 1.0000

57.2387 59.5143 1.0000

80.3668 90.9601 1.0000

68.4685 85.5943 1.0000

75.4777 90.4245 1.0000