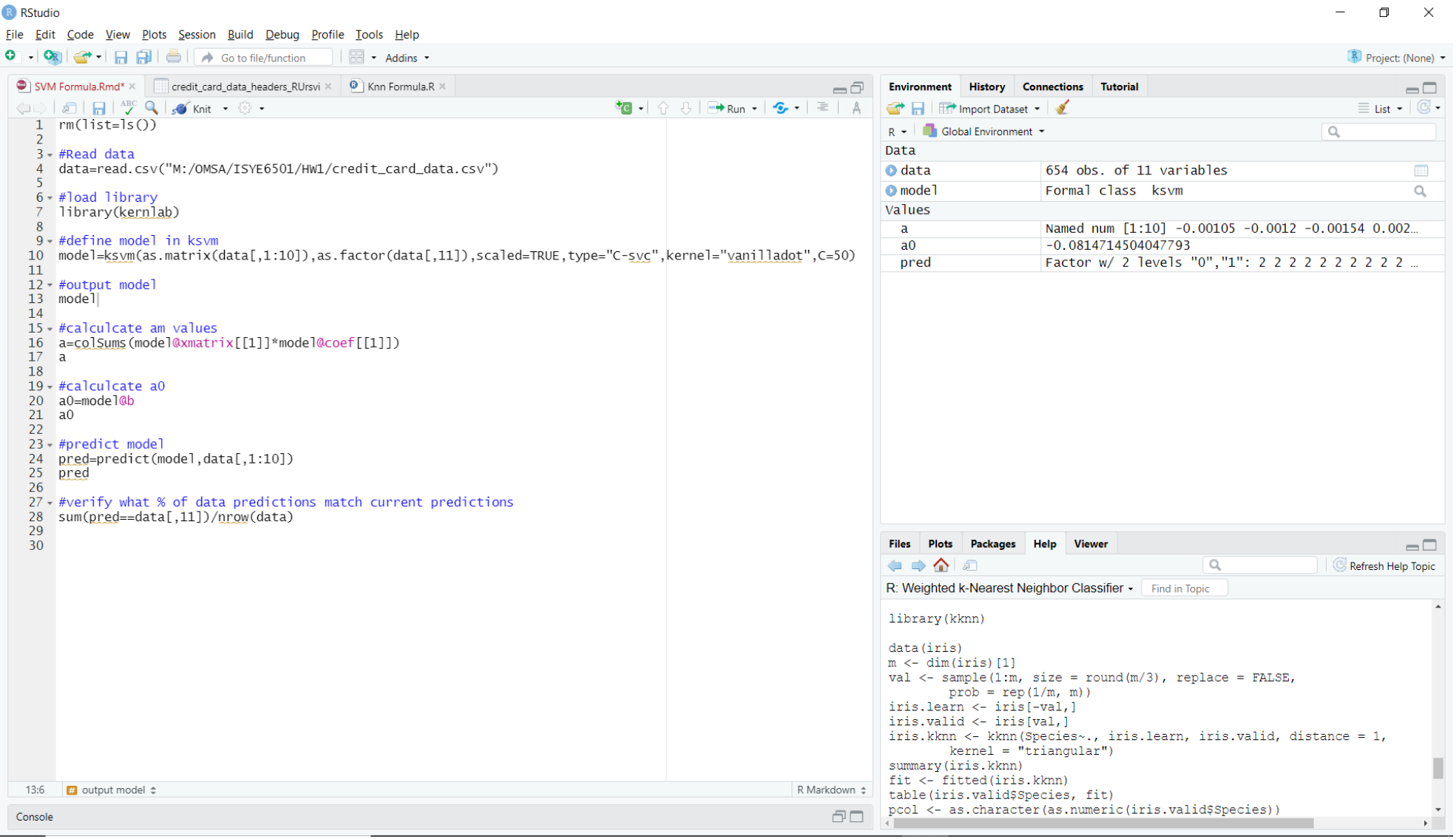
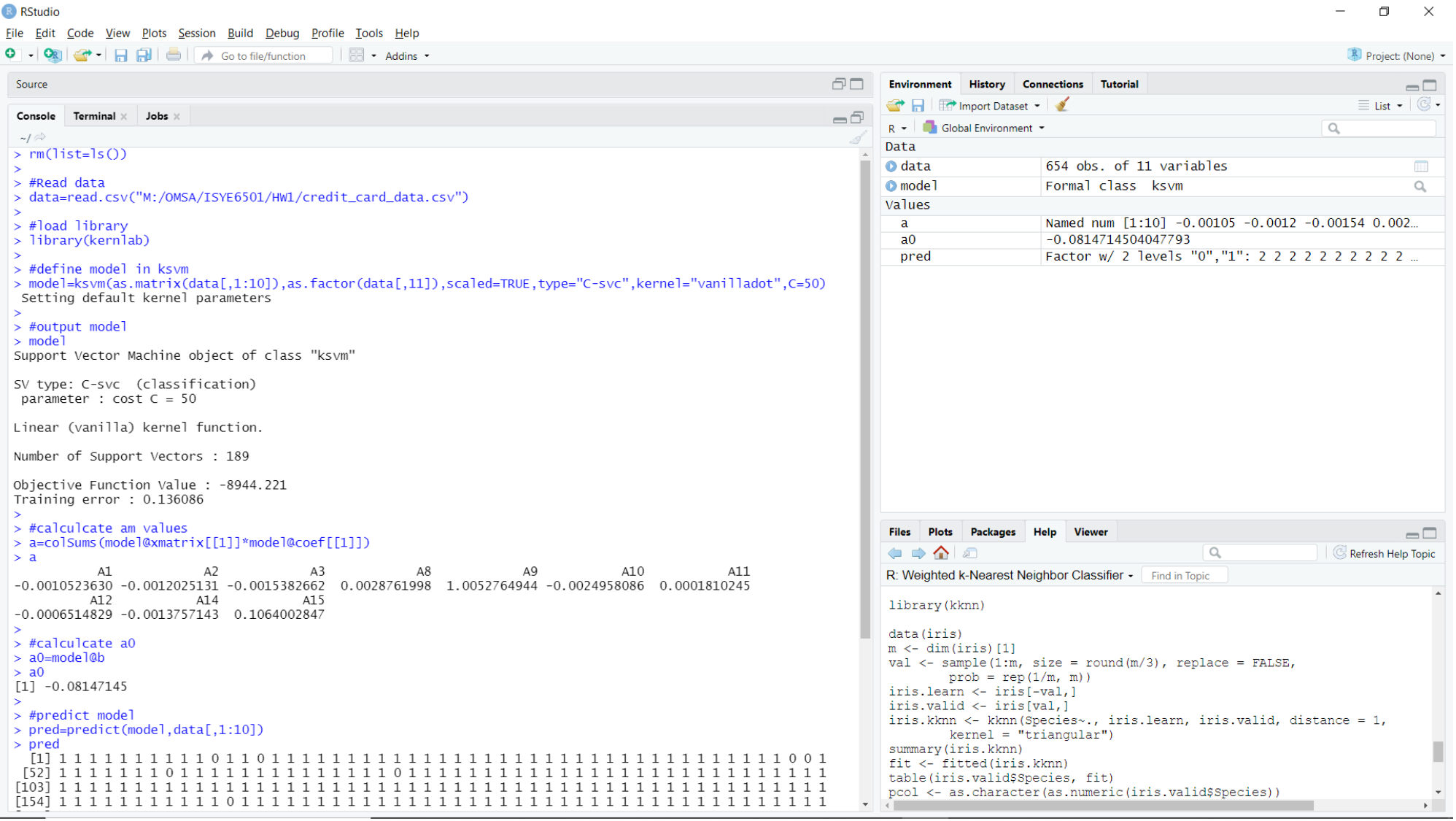
Question 2.2:-

1) Support Vector machine function code used in R studio
   a. The homework file was converted to a csv prior to reading in Rstudio environment
   b. Data was required to read as matrix for attributes in column 1 to 10
   c. Response in column 11 was read as factor inputs for ksvm modelling
   d. All data was scaled



d) Equation of the Classifier is: **-0.0010523630A1 – 0.0012025131A2 – 0.0015382662A3 + 0.0028761998A8 + 1.0052764944A9 – 0.0024958086A10 + 0.0001810245A11 – 0.006514829A12 – 0.0013757143A14 + 0.1064002847A15 + 0.08147145 = 0**



e) The value of C was changed between 10 to 10^5 with no change in accuracy. All values of C within this range had predicted data with an **Accuracy of 86.39%. At C with a value of 10^6 the prediction accuracy drops down to 62.5%**, as a result any C within the earlier range will work for prediction accuracy, however, higher the C value the more emphasis will be given to decreasing the error

f) Based on the values of "a" calculated through the SVM model, only A9 and A15 have an impact on the classification model. Rest of the attributes can be safely dropped / removed from the classification model. Do note that doing so will generate a new classification model with a new equation