2. B)

DEAD:

1. Average Event Count =982.014

2. Max Event Count=8635

3. Min Event Count=1

1. Average Encounter Count=23.038

2. Max Encounter Count=203

3. Min Encounter Count=1

1. Average Record Length=127.5

2. Max Record Length=1972

3. Min Record Length=0

ALIVE:

1. Average Event Count=498.118

2. Max Event Count=12627

3. Min Event Count=1

1. Average Encounter Count=15.452

2. Max Encounter Count=391

3. Min Encounter Count=1

1. Average Record Length

2. Max Record Length=291

3. Min Record Length=0

4.1 B)

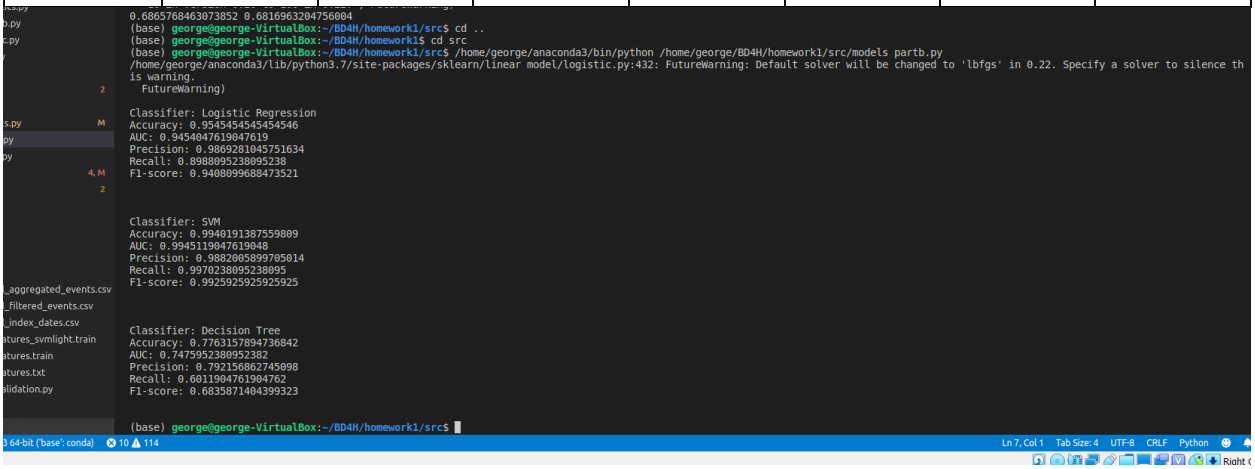
Accuracy AUC Precision Recall F-Score

Logistic Regression

SVM

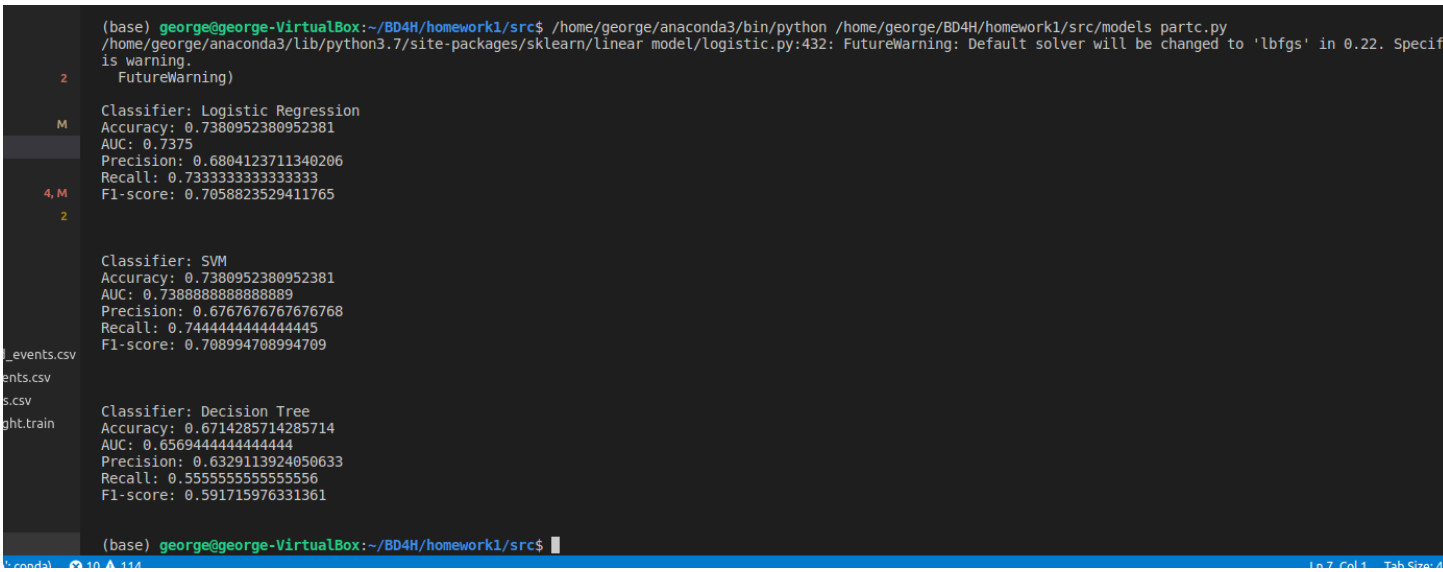
Decision Tree

	Acc	AUC	Precision	Recall	F-Score		
Logistic Regression	0.955	0.954	0.987	0.899	0.941		
SVM	0.994	0.995	0.988	0.997	0.993		
Decision Tree	0.776	0.748	0.792	0.601	0.684		



4.1 C)

	Acc	AUC	Precision	Recall	F-Score		
Logistic Regression	0.738	0.738	0.680	0.733	0.706		
SVM	0.738	0.739	0.677	0.744	0.709		
Decision Tree	0.671	0.657	0.633	0.556	0.592		



4.1 D) It seems more data could definitely help with these model results. I think it is also worth tuning the observation window – it may be that longer histories of the patients have a more significant impact on the mortality of a patient as histories of medical issues typically span many,many years. Grid search or Bayesian hyperparameter tuning should also be implemented to get better results.

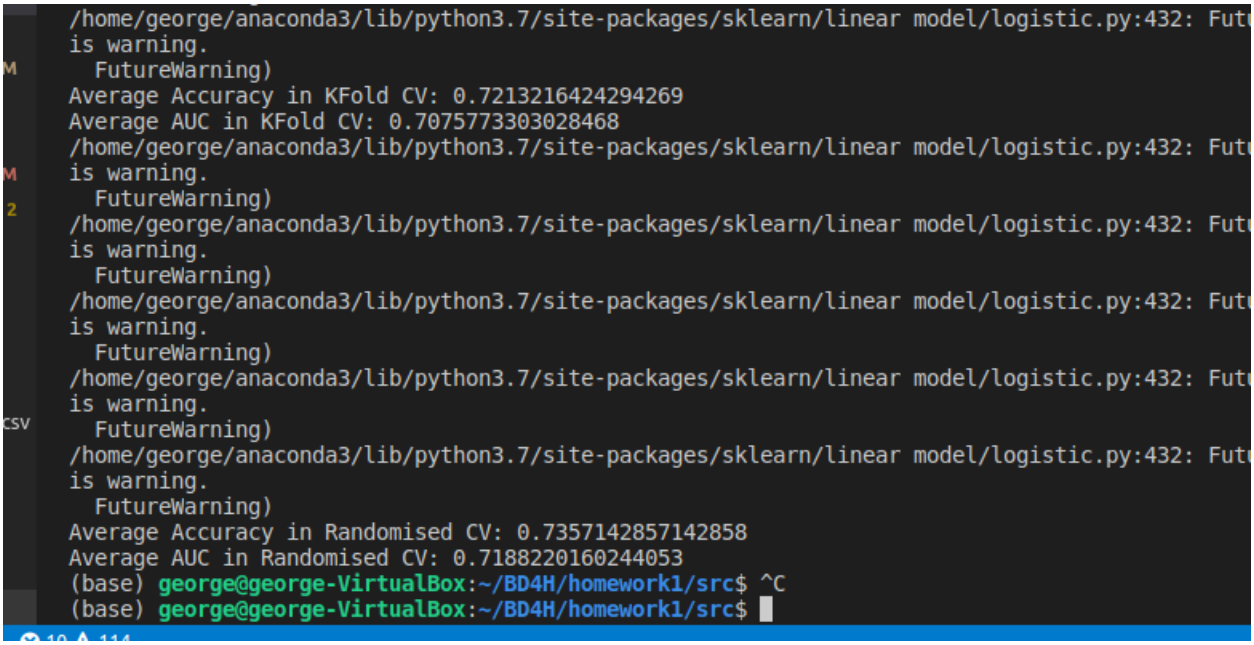
4.2 B)

Avg AUC for KCV: 0.7058

Avg ACC for KCV: 0.7213

Avg AUC for Random CV:0.7188

Avg ACC for Random CV: 0.7357



4.3 My best model – Gradient boosting classifier didn't perform as well as I had hoped. I did 5 fold Kfold and used basic hyperparameters (default) and a max depth of 5 so I could compare to that given to us from you guys and the results were not promising. I repeated this same procedure for RandomForest Classifier. Gradient Boosting Classifier performed even better in this case so that was my best model. I thought that the more sophisticated models would actually perform better as they have more room to represent data with higher variance. This was not the case. The main reason for this I can think of is that these tree based models are much more complex than logistic regression and are much better suited for larger more complex datasets (there's an argument made by Andrew NG that larger/complex models are better suited for larger datasets). It may be that this dataset is rather straightforward