

Best overall model as measured by accuracy: **Model 2**  
**This is the best model for predicting tumor classes**

```
model2 = Sequential()
model2.add(Dense(600, input_shape=(675,), activation='relu'))
model2.add(Dense(300, activation='relu'))
model2.add(Dense(150, activation='relu'))
model2.add(Dense(75, activation='relu'))
model2.add(Dense(4, activation='softmax'))

model2.compile(optimizer='adam', loss='sparse_categorical_crossentropy', metrics=['accuracy'])
```

Early stopping is on with a patience of 20 and optimizing for accuracy

	precision	recall	f1-score	support
0	0.91	0.87	0.89	180
1	0.89	0.89	0.89	183
2	0.94	0.89	0.91	88
3	0.89	0.95	0.92	169
accuracy			0.90	620

Best model at classifying normal scans vs any brain tumor: **final\_model\_CC**  
**Class 2 are the normal tumors and class two has a recall of 97%**

```
final_model_CC = Sequential()
final_model_CC.add(Dense(600, input_shape=(675,), activation='relu'))
final_model_CC.add(Dropout(.2))
final_model_CC.add(Dense(300, activation='relu'))
final_model_CC.add(Dropout(.2))
final_model_CC.add(Dense(150, activation='relu'))
final_model_CC.add(Dense(75, activation='relu'))
final_model_CC.add(Dropout(.2))
final_model_CC.add(Dense(4, activation='softmax'))
final_model_CC.compile(optimizer='adam', loss='categorical_crossentropy', metrics=['accuracy'])
```

	precision	recall	f1-score	support
0	0.93	0.69	0.79	180
1	0.83	0.75	0.79	183
2	0.87	0.97	0.91	88
3	0.74	0.98	0.84	169
accuracy			0.83	620

