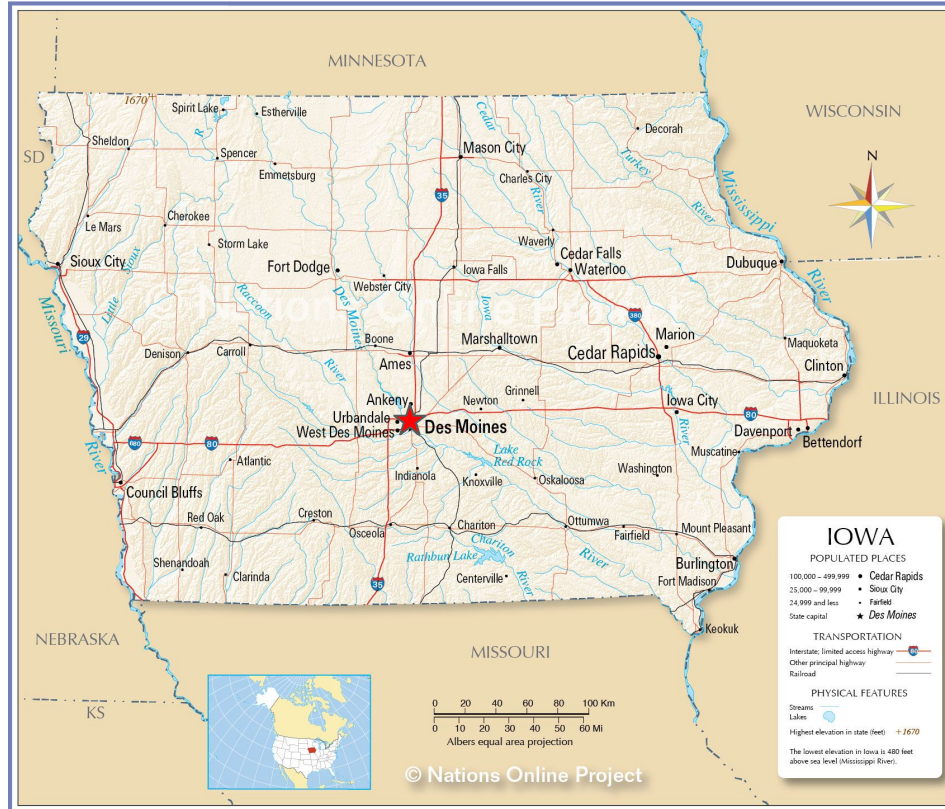# ATMS 597 Project 5

Group B
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Class Presentation
23 April 2020

ASOS station: Des Moines International Airport (KDSM)

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Aerial view of KDSM

-Temporal coverage: 2000-2020
-Automated sensors
-Data available every 5 minutes
-Sometimes supplemented with information from human observers
-Used variables with adequate temporal coverage
     -Left out the medium and high cloud variables

Model-1 Logistic Regression (Baseline)

We used a **logistic regression classifier** with default values to predict rain (0) or snow (1).

We randomly assigned 70% of the data into training and 30% into testing samples and performed the classification

Model-2 Support Vector Machine classifier

We used a **non-linear SVM classifier** to predict rain (0) or snow (1).

We used the **rbf kernel** method from Sklearn.

We randomly assigned 70% of the data into training and 30% into testing samples.

We derived *good enough* values for hyperparameters using **Grid Search** (for C and gamma).

Using **C = 1000** and **gamma = 0.001**, we performed SVM classification for predicting rain or snow.
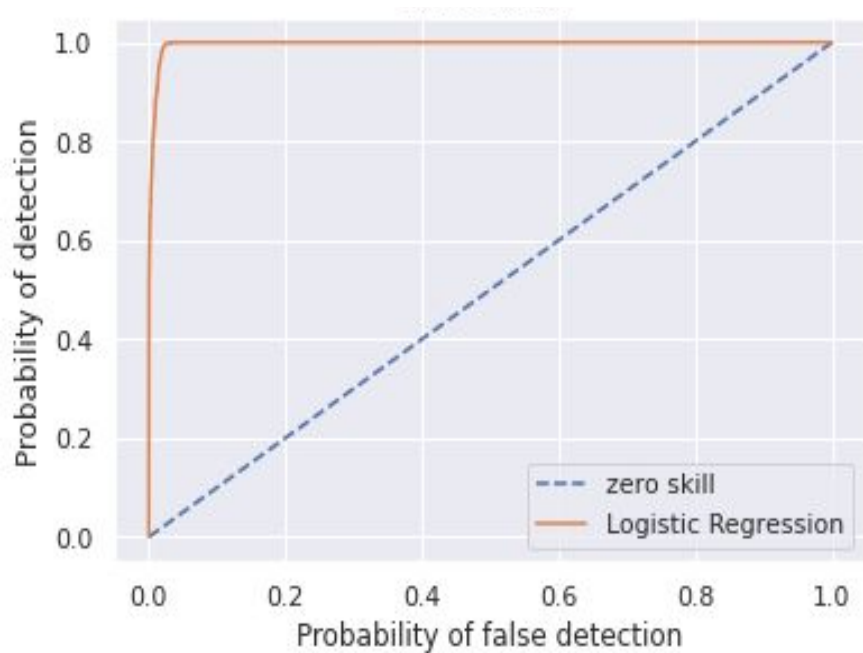
Results - Brier Skill Score

Model	Training	Validation
Logistic Regression	0.937	0.938
Support Vector Machine	0.944	0.946

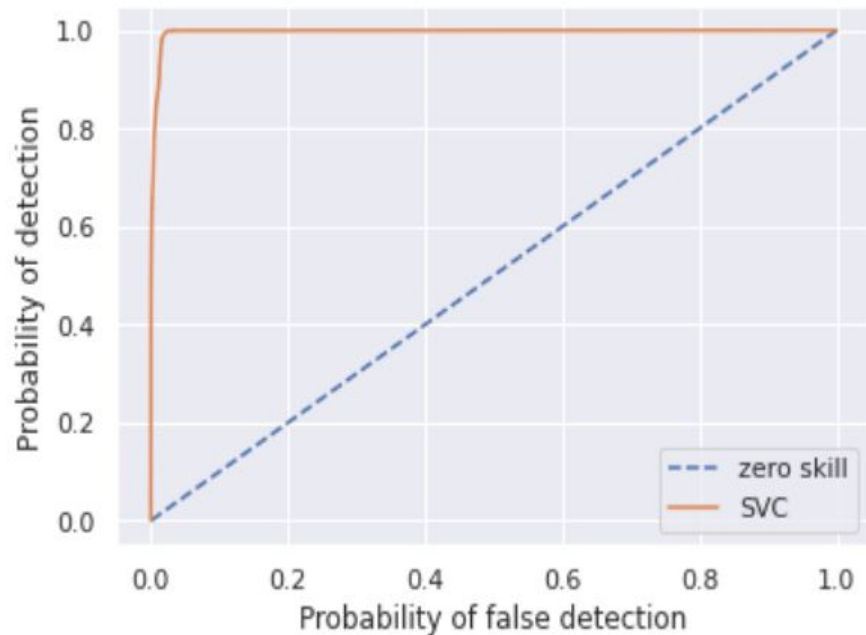# Results - ROC Curves

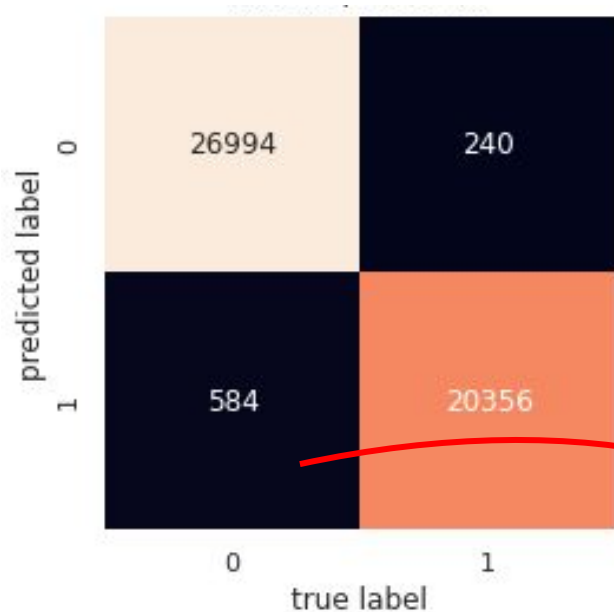Logistic Regression   SVM Classifier
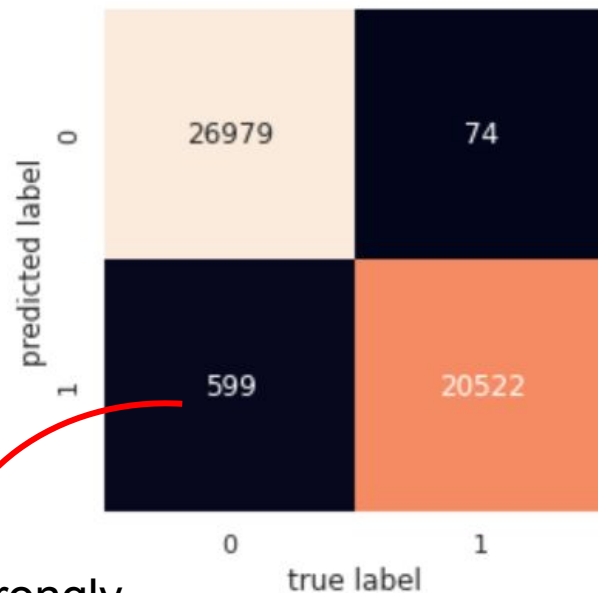

Eh they are both good..!
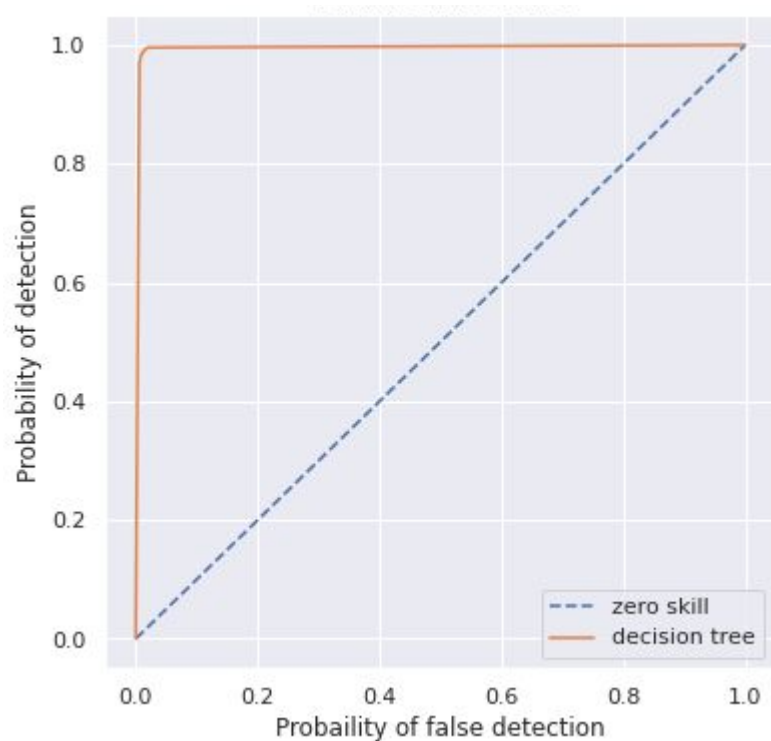
Results - Confusion Matrix

Logistic Regression

SVM Classifier

Rain wrongly predicted as snow

Model 3 - Decision Tree Classifier

Training BSS: 0.986
Validation BSS: 0.961