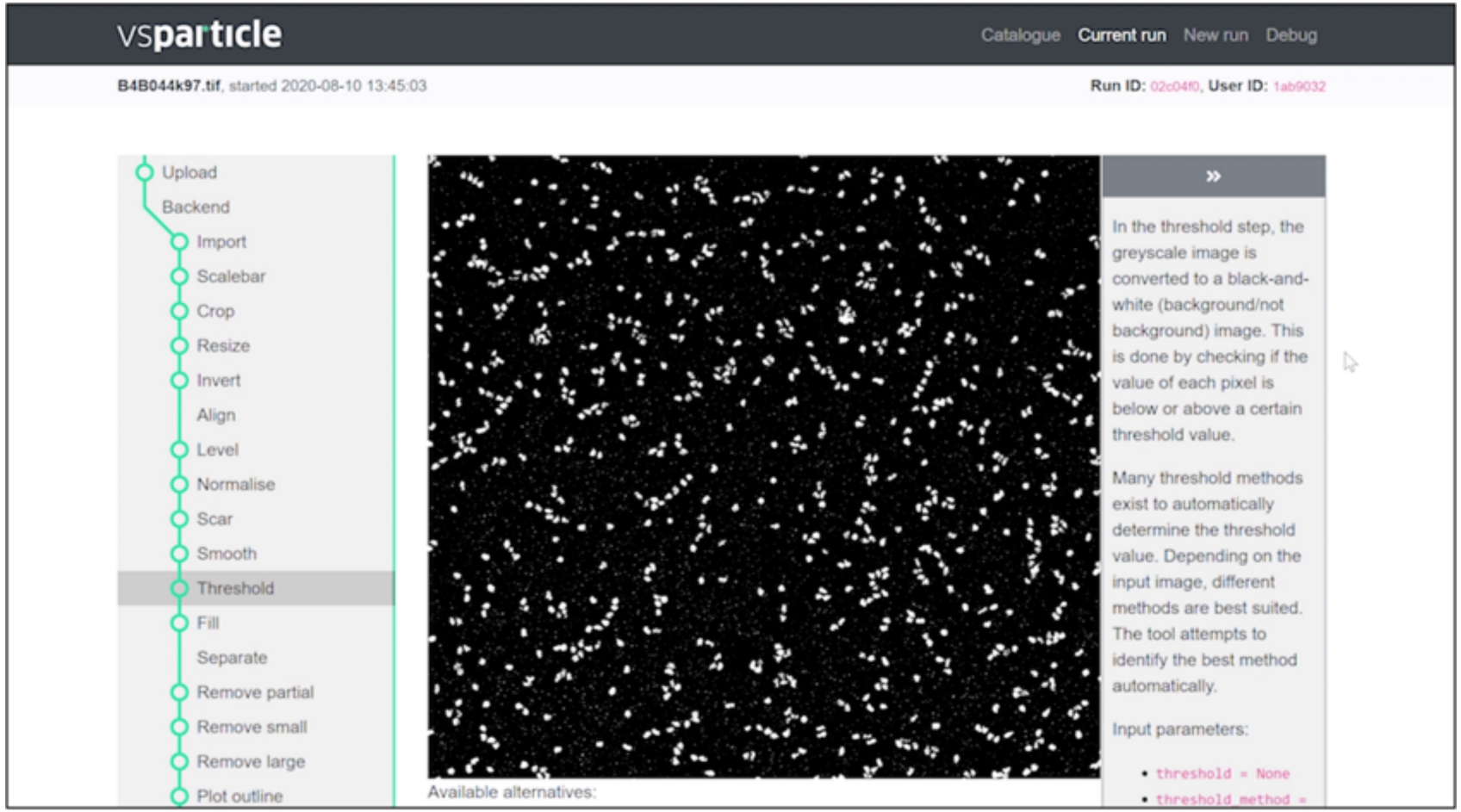
30/11 – 05/12

KLARA, YORAN, OSCAR

NANO — WEEK 13

OBJECTIVE

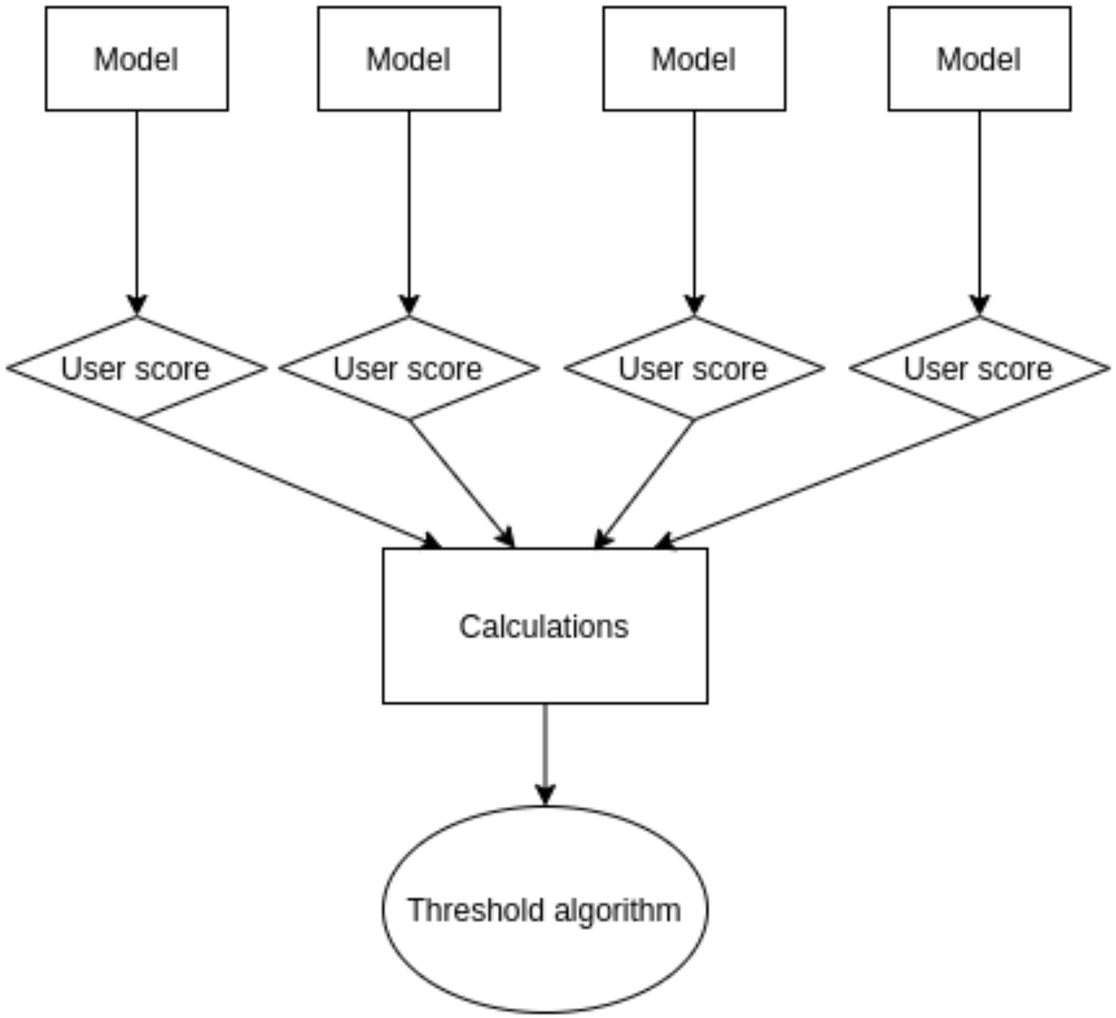
- VSParticle's image analysis software
- Create a model that predicts the thresholding method



DATASET

Contains:

- Used threshold algorithm
- Used algorithm feature scores
- User score



EXPERIMENT

- Split user scores into classes
- Split features in all possible combinations
- Combine each model with each balancing method, each combination of features and each number of classes
- Save data frame for each combination

EXPERIMENT: OUTCOMES

- Nested dictionary with dataframes of scores

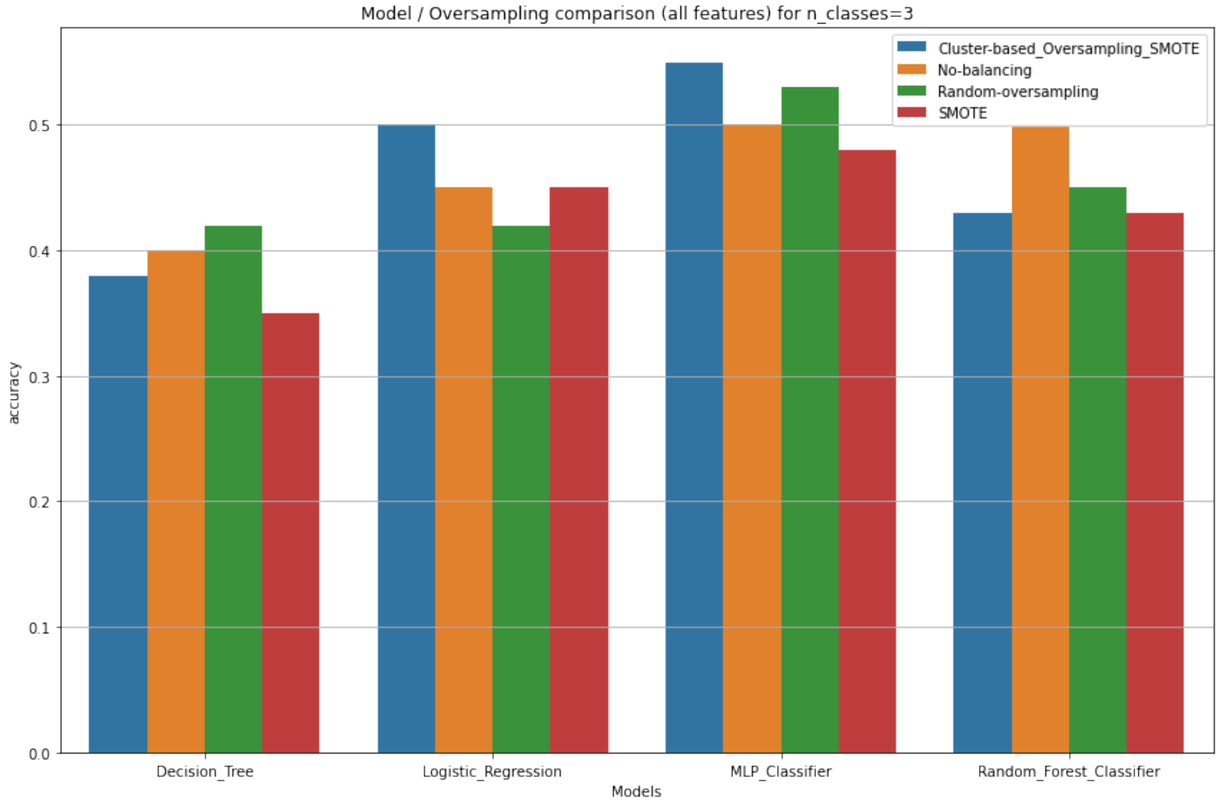
```
22 df_dict['MLP_Classifier']['Random-oversampling']
```

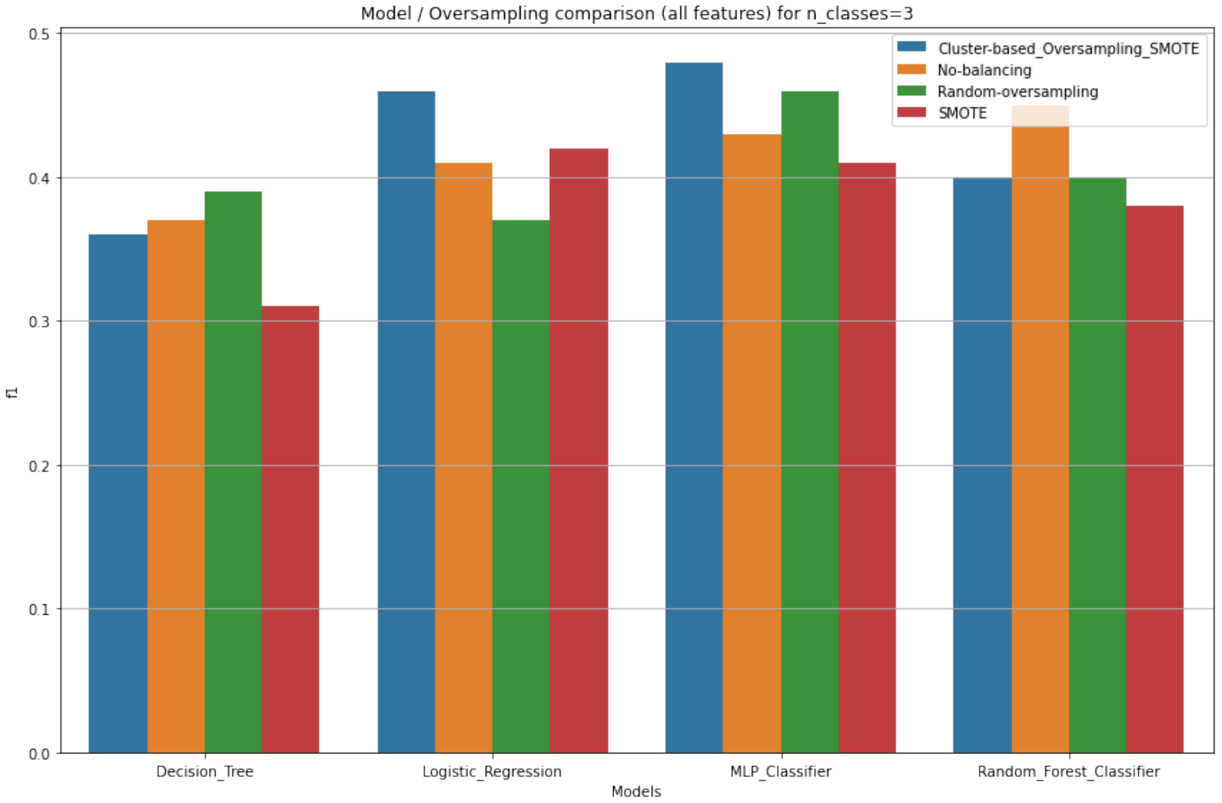
score_type	features_used	n_classes=2	n_classes=3	n_classes=4	n_classes=5
accuracy	a	0.427273	0.345455	0.224242	0.206061
	b	0.640909	0.363636	0.298485	0.192424
	c	0.621212	0.433333	0.416667	0.204545
	f	0.619697	0.290909	0.292424	0.219697
	i	0.607576	0.348485	0.274242	0.174242
...	...	...	...	...	...
f1	abcis	0.636803	0.461270	0.164087	0.190771
	abfis	0.605216	0.475576	0.248582	0.229746
	acfis	0.664661	0.485291	0.225685	0.241079
	bcfis	0.666518	0.458447	0.296519	0.181365
	abcfis	0.644785	0.462713	0.270844	0.272857

252 rows × 4 columns

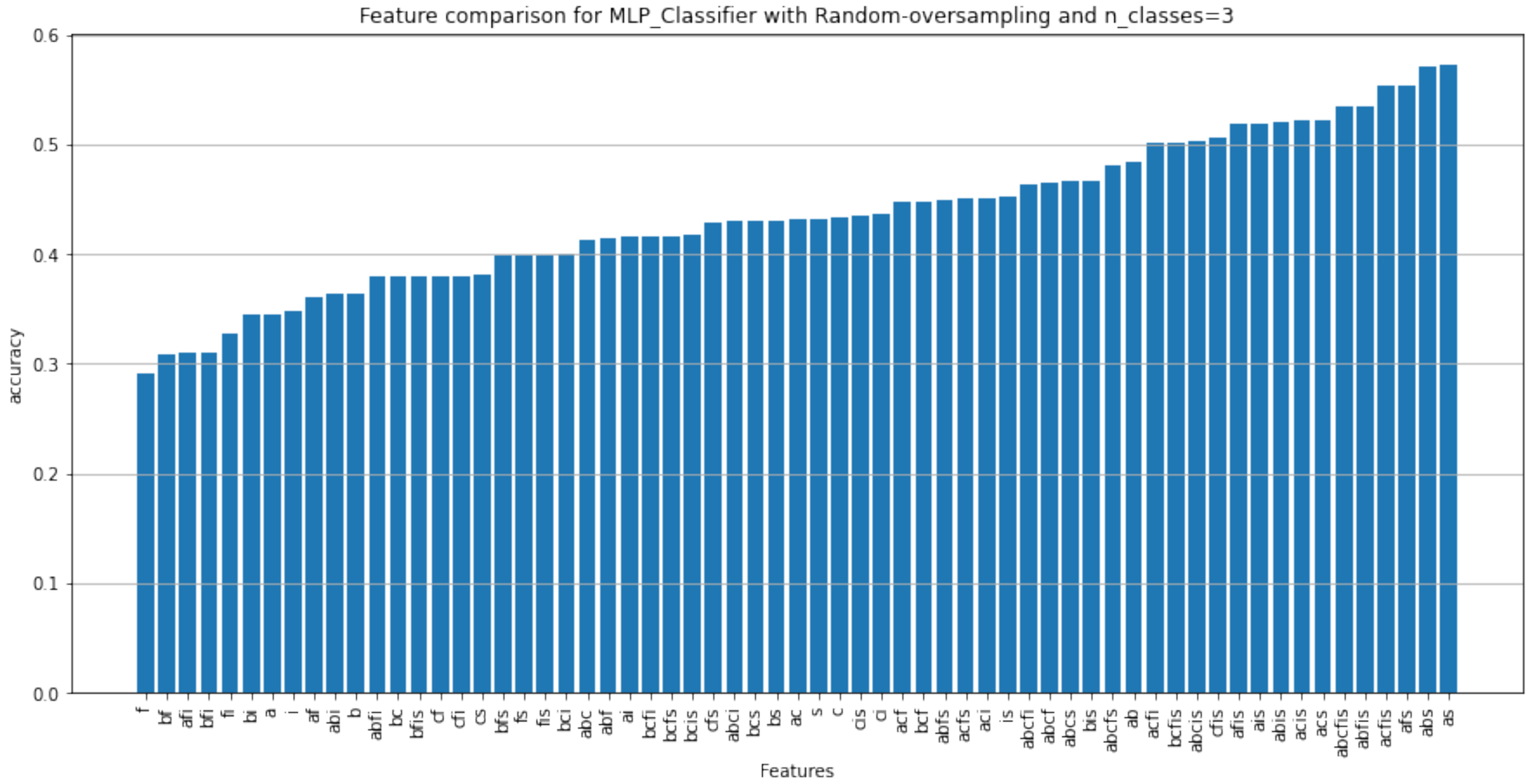
EXPERIMENT: MODEL COMPARISON

- Multi-layer perceptron classifier scores high with all features used



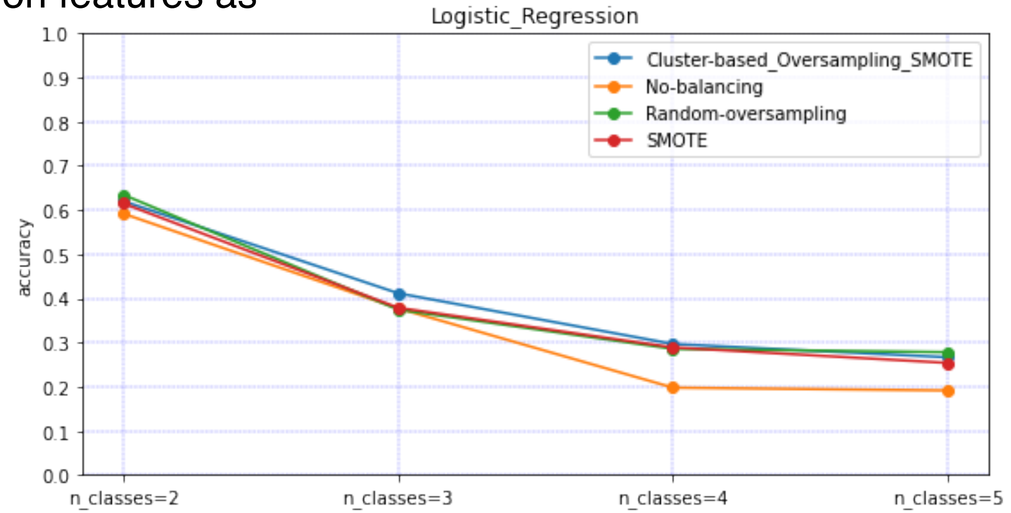


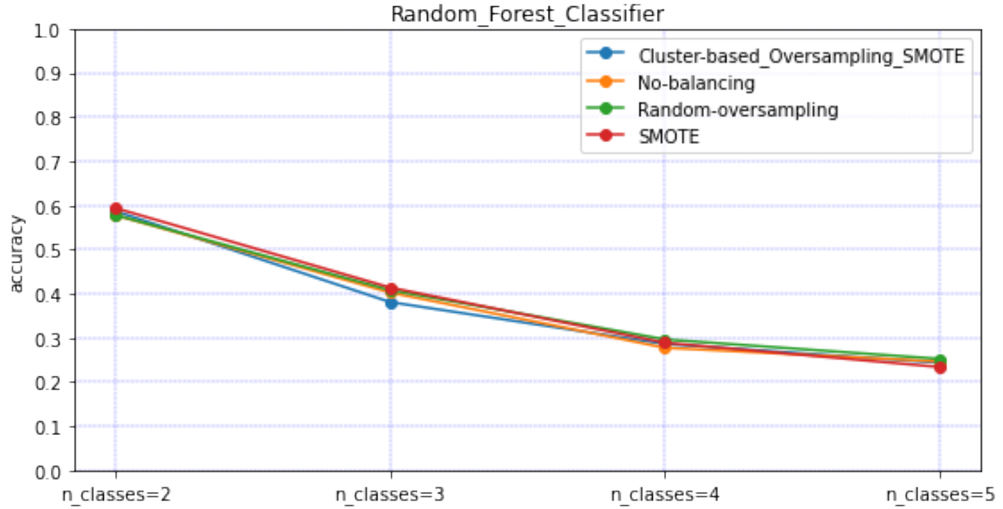
EXPERIMENT: FEATURE COMPARISON



EXPERIMENT: CLASS COMPARISON

Class comparison on features as





COMING WEEK

- Analyse the outcomes of the experiment more in-depth
  - More visualisations
  - Ranking of best feature combinations
  - Find best model, balancing method and number of classes
- Optimise model for each threshold method

THANK YOU!

ANY QUESTIONS OR FEEDBACK?