

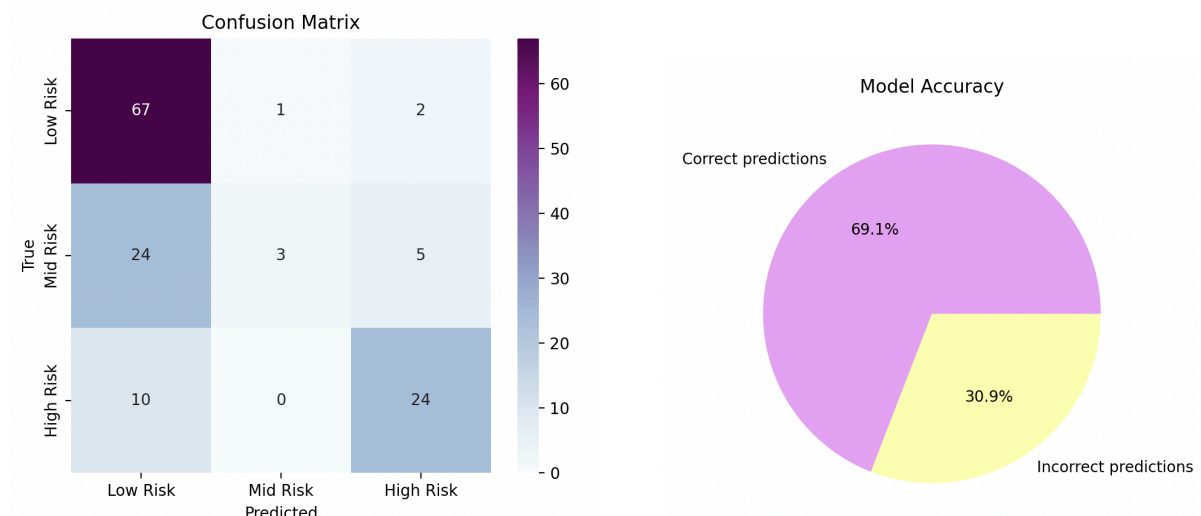
Deliverable 3

1. Final Training Results Compare your final results to your preliminary ones (from the previous deliverable). Have you changed anything to your model since the previous deliverable? If so, how have your changes improved the results?

- We implemented grid search and cross-validation to our model in the testing phase. We used SMOTE across each fold we made with the dataset, in order to make sure our classes were balanced, as some classes were overrepresented compared to others. However, we only witnessed a 1% increase in the accuracy of our model, from 68 to 69 percent. Upon closer inspection of the data, it seems that the dataset we are using may not be optimal for the task we are trying to accomplish. When our model was used on a credit risk dataset, our model had an 88% accuracy. In these next weeks we plan to either try to pre-process the data even more, or find a new dataset, as this one has proven to give us difficulties.

Now, focus on your final results. Once again, present a detailed analysis of your results, provide graphs as appropriate. Analysis requirements differ in every field, but must report at least one concrete metric relevant to the field in which you are working.

- The confusion matrix and accuracy graph for our model looks like this:



	precision	recall	f1-score	support
0	0.66	0.96	0.78	70
1	0.75	0.09	0.17	32
2	0.77	0.71	0.74	34
accuracy			0.69	136
macro avg	0.73	0.59	0.56	136
weighted avg	0.71	0.69	0.63	136

2. Final demonstration proposal: Now that you trained your model, it is time for you to integrate it in a final product. Don't forget to save your trained weights! You will need them for the integration and/or testing your model. (e.g. in keras: `model.save_weights(filepath)` and `model.load_weights(filepath)`)

- Application We want all of you to at least have a landing page type website to demo your model and results. For more experienced developers, you are welcome to choose something more advanced.

Discuss your final product, and final integration approach. Describe and justify the choice of stacks and technologies. Provide diagrams as appropriate. Explain your experiences with the technologies you have proposed. If you do not have any, explain how you would come to learn them (eg. online tutorials, etc.)

For our final product, we plan to integrate our model into a user-friendly website using HTML/CSS frontend and a Flask backend. It has a button to train the model that will train the model and display the accuracy and has the graphics that display the success of the model after training. We chose to use this stack for its simplicity and flexibility in utilizing the model into the webpage. In the past we have had some experience with HTML and CSS for making web pages and Python for other un-webpage related coding. To better understand flask, as we had minimal experience with it, we used the provided youtube flask tutorial. This allowed us to create a clear and minimal website, displaying the model's results.