

	Mastery	Approaching Mastery	Progressing	Emerging	Incomplete
Written Analysis (30 points)	<p>Presents a cohesive written analysis via readme or text file that answers the following questions.</p> <ul style="list-style-type: none"> ✓ How many neurons and layers did you select for your neural network model? ✓ Were you able to achieve target model performance? ✓ What steps did you take to try and increase model performance? ✓ If you were to implement a different model to solve this classification problem, which would you choose and why? 	<p>Presents a cohesive written analysis via readme or text file that answers three of the following questions.</p> <ul style="list-style-type: none"> ✓ How many neurons and layers did you select for your neural network model? ✓ Were you able to achieve target model performance? ✓ What steps did you take to try and increase model performance? ✓ If you were to implement a different model to solve this classification problem, which would you choose and why? 	<p>Presents a developing written analysis via readme or text file that answers two the following questions.</p> <ul style="list-style-type: none"> ✓ How many neurons and layers did you select for your neural network model? ✓ Were you able to achieve target model performance? ✓ What steps did you take to try and increase model performance? ✓ If you were to implement a different model to solve this classification problem, which would you choose and why? 	<p>Presents a limited written analysis via readme or text file that answers one the following questions.</p> <ul style="list-style-type: none"> ✓ How many neurons and layers did you select for your neural network model? ✓ Were you able to achieve target model performance? ✓ What steps did you take to try and increase model performance? ✓ If you were to implement a different model to solve this classification problem, which would you choose and why? 	<p>No submission was received</p> <p>-OR-</p> <p>Submission was empty or blank</p> <p>-OR-</p> <p>Submission contains evidence of academic dishonesty</p>
Data Pre-Processing (30 points)	<p>Data is appropriately pre-processed, including all of the following steps.</p> <ul style="list-style-type: none"> ✓ Filters out non-feature variables from dataset if needed ✓ Applies categorical binning when appropriate ✓ Encodes categorical variables using one-hot encoding ✓ Standardizes and scales numerical variables using StandardScaler 	<p>Data is appropriately pre-processed, including two or three of the following steps.</p> <ul style="list-style-type: none"> ✓ Filters out non-feature variables from dataset if needed ✓ Applies categorical binning when appropriate ✓ Encodes categorical variables using one-hot encoding ✓ Standardizes and scales numerical variables using StandardScaler 	<p>Data is appropriately pre-processed, including at least one of the following steps.</p> <ul style="list-style-type: none"> ✓ Filters out non-feature variables from dataset if needed ✓ Applies categorical binning when appropriate ✓ Encodes categorical variables using one-hot encoding ✓ Standardizes and scales numerical variables using StandardScaler 	<p>Student attempts to produce working code that produces one of the following steps:</p> <ul style="list-style-type: none"> ✓ Filters out non-feature variables from dataset if needed ✓ Applies categorical binning when appropriate ✓ Encodes categorical variables using one-hot encoding ✓ Standardizes and scales numerical variables using StandardScaler <p>-OR-</p>	

				Student reads in a preprocessed data frame into the notebook without any preprocessing code.	
Compile, Train, and Evaluate Model (20 points)	<p>The notebook contains working code that performs the following steps:</p> <ul style="list-style-type: none"> ✓ Defines a neural network model using Tensorflow Keras module ✓ Defines the number of layers and number of neurons per layer ✓ Defines a neural network model using Tensorflow Keras module ✓ Compiles model that defines loss metric and optimization function ✓ Train and evaluate model using predictive accuracy 	<p>The notebook contains working code that performs four of the following steps.</p> <ul style="list-style-type: none"> ✓ Defines a neural network model using Tensorflow Keras module ✓ Defines the number of layers and number of neurons per layer ✓ Defines a neural network model using Tensorflow Keras module ✓ Compiles model that defines loss metric and optimization function ✓ Train and evaluate model using predictive accuracy 	<p>The notebook contains working code that performs at least one of the following steps.</p> <ul style="list-style-type: none"> ✓ Defines a neural network model using Tensorflow Keras module ✓ Defines the number of layers and number of neurons per layer ✓ Defines a neural network model using Tensorflow Keras module ✓ Compiles model that defines loss metric and optimization function ✓ Train and evaluate model using predictive accuracy 	<p>Student attempts to produce working code that produces one of the following steps:</p> <ul style="list-style-type: none"> ✓ Defines a neural network model using Tensorflow Keras module ✓ Defines the number of layers and number of neurons per layer ✓ Defines a neural network model using Tensorflow Keras module ✓ Compiles model that defines loss metric and optimization function ✓ Train and evaluate model using predictive accuracy 	
Optimize Model (20 points)	<p>Student produces model that demonstrates predictive accuracy over 75%</p> <p>-OR-</p> <p>The notebook contains working code that attempts to increase model performance at least three times using the following steps:</p> <ul style="list-style-type: none"> ✓ Leaving out noisy variables from features ✓ Adds additional neurons to hidden layers ✓ Adds additional hidden layers to model ✓ Changes activation function of hidden layers or output layer 	<p>The notebook contains working code that attempts to increase model performance at least two times using the following steps</p> <ul style="list-style-type: none"> ✓ Leaving out noisy variables from features ✓ Adds additional neurons to hidden layers ✓ Adds additional hidden layers to model ✓ Changes activation function of hidden layers or output layer ✓ Trains through additional epochs 	<p>The notebook contains working code that attempts to increase model performance at least one time using the following steps</p> <ul style="list-style-type: none"> ✓ Leaving out noisy variables from features ✓ Adds additional neurons to hidden layers ✓ Adds additional hidden layers to model ✓ Changes activation function of hidden layers or output layer ✓ Trains through additional epochs 	<p>Student attempts to produce working code that produces one of the following steps:</p> <ul style="list-style-type: none"> ✓ Leaving out noisy variables from features ✓ Adds additional neurons to hidden layers ✓ Adds additional hidden layers to model ✓ Changes activation function of hidden layers or output layer ✓ Trains through additional epochs 	

	✓ Trains through additional epochs				
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