

Final Project Holdout Test Set Requirements

PPG Paints Final Project

Dr. Joseph P. Yurko (Pitt)

Anastasia Sosnovskikh (PPG, Pitt 2021)

A hold-out test set is provided on Canvas

	A	B	C	D	E	F
1	R	G	B	Lightness	Saturation	Hue
2	225	218	202	light	gray	13
3	237	235	231	pale	gray	34
4	201	187	163	midtone	neutral	13
5	178	172	162	soft	gray	11
6	207	197	182	light	gray	7
7	201	191	178	soft	gray	12
8	190	192	194	soft	gray	33
9	229	224	210	pale	gray	11
10	173	176	180	midtone	gray	33
11	229	221	200	light	neutral	16
12	189	182	174	soft	gray	8
13	221	207	188	soft	shaded	11
14	171	168	158	midtone	gray	10
15	207	198	188	light	gray	8
16	232	227	219	pale	gray	7
17	225	207	178	soft	shaded	12
18	128	123	118	deep	gray	10
19	191	171	156	midtone	gray	12

The input names are the SAME as those in the training set.
The hold-out test set ONLY contains inputs!!!

You must predict the continuous logit-transformed response and the binary outcome using this test set

- You must select 1 regression model and 1 classification model.
- You must predict the logit-transformed continuous response.
- You must predict the probability of the event.
- You must classify the binary outcome assuming a default threshold of 0.5.

Organize the test set predictions

- Compile the predictions into a dataframe with 4 columns:
 - `id` – the row index (use `tibble::rowid_to_column()` function)
 - `y` – the prediction for the logit-transformed continuous response
 - `outcome` – the classified outcome
 - Must have values `event` and `non_event`
 - `probability` – the predicted probability of the event
- Save the dataframe to a CSV file.
 - Can save using the `readr::write_csv()` function

Canvas includes an example Markdown which shows how to compile the predictions

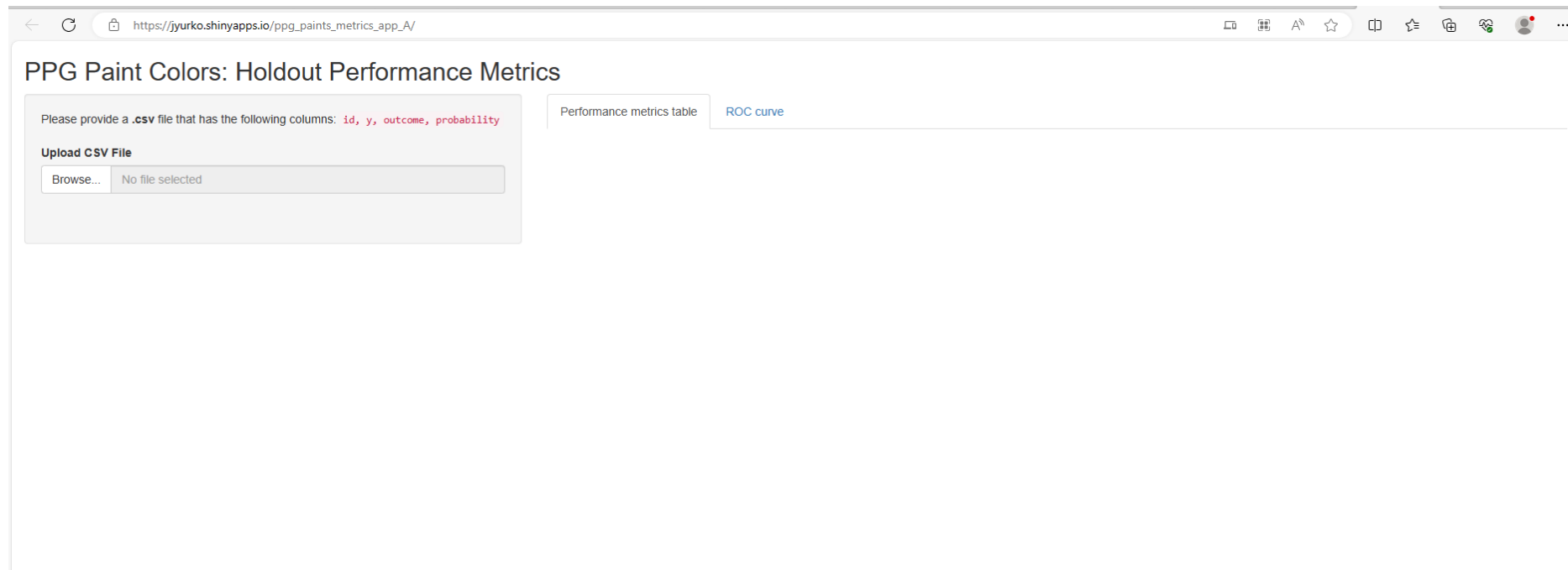
- The example Markdown trains a few bad models, shows how to make predictions, and how to compile those predictions accordingly.
- The example shows how to organize `caret` trained model object predictions.

Snippet of the compiled predictions which were saved into a CSV file

	A	B	C	D
1	id	y	outcome	probability
2	1	0.985979	non_even	0.195565
3	2	1.309279	non_even	0.271842
4	3	-0.01056	non_even	0.248196
5	4	0.555348	non_even	0.252754
6	5	0.99623	non_even	0.190894
7	6	0.553639	non_even	0.253698
8	7	0.517759	non_even	0.274061
9	8	1.348576	non_even	0.24971
10	9	-0.04473	non_even	0.267297
11	10	0.980853	non_even	0.197933
12	11	0.560473	non_even	0.249935
13	12	0.555348	non_even	0.252754
14	13	-0.00543	non_even	0.245411

Your predictions will “scored” by uploading the predictions to a website

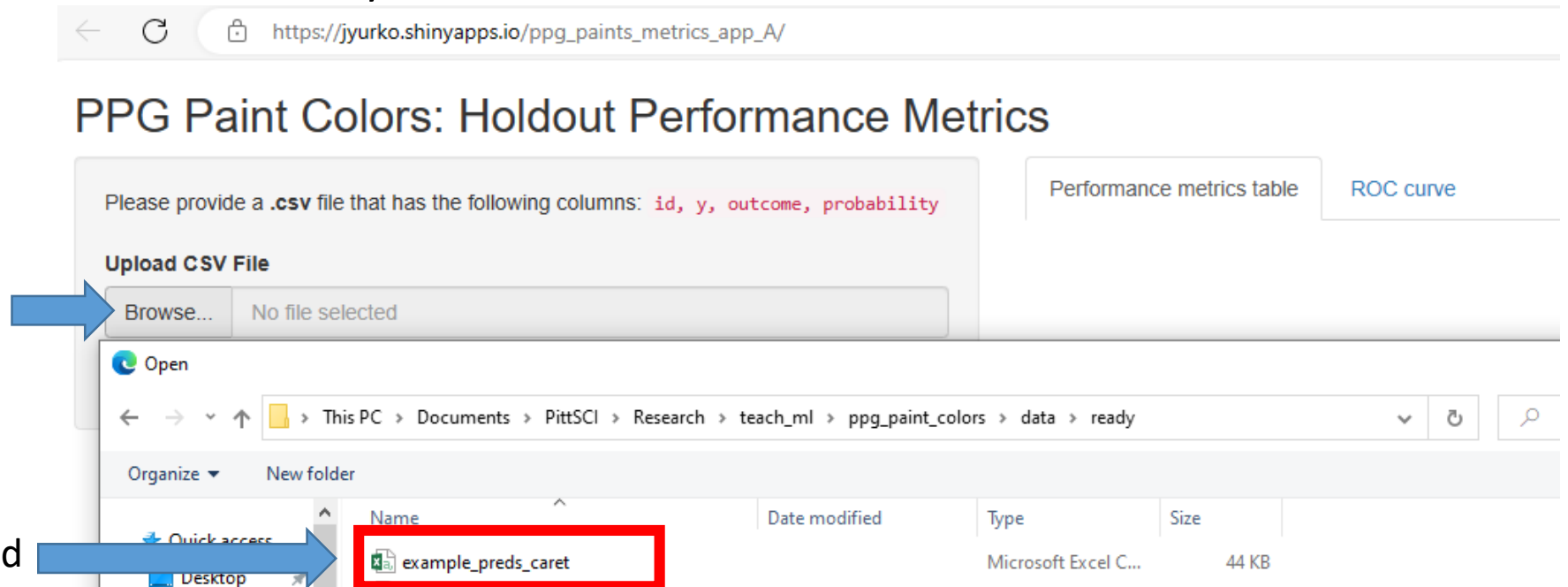
- Go to the following [PPG Holdout test set Shiny App](https://jyurko.shinyapps.io/ppg_paints_metrics_app_A/).
- The landing page looks like:



Your predictions will “scored” by uploading the predictions to a website

- Go to the following [PPG Holdout test set Shiny App](https://jyurko.shinyapps.io/ppg_paints_metrics_app_A/).
- Select the Browse button and upload your CSV file of predictions to the website.
- I named my example CSV file `example_preds_caret.csv`
- You may name your CSV file whatever you want.

Click the “Browse” button to navigate your file explorer to identify your CSV file



Select the CSV file to upload

Your predictions will “scored” by uploading the predictions to a website

- Once uploaded the performance metrics on the hold-out test set will be shown to you.

← ↻ https://jyurko.shinyapps.io/ppg_paints_metrics_app_A/

PPG Paint Colors: Holdout Performance Metrics

Please provide a **.csv** file that has the following columns: **id**, **y**, **outcome**, **probability**

Upload CSV File

Browse... example_preds_caret.csv

Upload complete

Here is a snapshot of your data:

id	y	outcome	probability
1.00	0.99	non_event	0.20
2.00	1.31	non_event	0.27
3.00	-0.01	non_event	0.25
4.00	0.56	non_event	0.25
5.00	1.00	non_event	0.19
6.00	0.55	non_event	0.25

Performance metrics table [ROC curve](#)

.metric	.estimator	.estimate
rmse	standard	0.46
rsq	standard	0.86
mae	standard	0.35
accuracy	binary	0.80
sens	binary	0.00
spec	binary	1.00
roc_auc	binary	0.52

Download

Your predictions will “scored” by uploading the predictions to a website

- Once uploaded the performance metrics on the hold-out test set will be shown to you.

← ↻ https://jyurko.shinyapps.io/ppg_paints_metrics_app_A/

PPG Paint Colors: Holdout Performance Metrics

Please provide a .csv file that has the following columns: `id`, `y`, `outcome`, `probability`

Upload CSV File

Browse... example_preds_caret.csv

Upload complete

Here is a snapshot of your data:

id	y	outcome	probability
1.00	0.99	non_event	0.20
2.00	1.31	non_event	0.27
3.00	-0.01	non_event	0.25
4.00	0.56	non_event	0.25
5.00	1.00	non_event	0.19
6.00	0.55	non_event	0.25

Performance metrics table [ROC curve](#)

.metric	.estimator	.estimate
rmse	standard	0.46
rsq	standard	0.86
mae	standard	0.35
accuracy	binary	0.80
sens	binary	0.00
spec	binary	1.00
roc_auc	binary	0.52

Download

The HOLDOUT test set
PERFORMANCE of your
REGRESSION model!

Your predictions will “scored” by uploading the predictions to a website

- Once uploaded the performance metrics on the hold-out test set will be shown to you.

← ↻ https://jyurko.shinyapps.io/ppg_paints_metrics_app_A/

PPG Paint Colors: Holdout Performance Metrics

Please provide a .csv file that has the following columns: `id`, `y`, `outcome`, `probability`

Upload CSV File

Browse... example_preds_caret.csv

Upload complete

Here is a snapshot of your data:

id	y	outcome	probability
1.00	0.99	non_event	0.20
2.00	1.31	non_event	0.27
3.00	-0.01	non_event	0.25
4.00	0.56	non_event	0.25
5.00	1.00	non_event	0.19
6.00	0.55	non_event	0.25

Performance metrics table [ROC curve](#)

.metric	.estimator	.estimate
rmse	standard	0.46
rsq	standard	0.86
mae	standard	0.35
accuracy	binary	0.80
sens	binary	0.00
spec	binary	1.00
roc_auc	binary	0.52

[Download](#)

The HOLDOUT test set
PERFORMANCE of your
CLASSIFICATION model!

Your predictions will “scored” by uploading the predictions to a website

- Once uploaded the performance metrics on the hold-out test set will be shown to you.

← ↻ https://jyurko.shinyapps.io/ppg_paints_metrics_app_A/

PPG Paint Colors: Holdout Performance Metrics

Please provide a .csv file that has the following columns: `id`, `y`, `outcome`, `probability`

Upload CSV File

Browse... example_preds_caret.csv

Upload complete

Here is a snapshot of your data:

id	y	outcome	probability
1.00	0.99	non_event	0.20
2.00	1.31	non_event	0.27
3.00	-0.01	non_event	0.25
4.00	0.56	non_event	0.25
5.00	1.00	non_event	0.19
6.00	0.55	non_event	0.25

Performance metrics table [ROC curve](#)

.metric	.estimator	.estimate
rmse	standard	0.46
rsq	standard	0.86
mae	standard	0.35
accuracy	binary	0.80
sens	binary	0.00
spec	binary	1.00
roc_auc	binary	0.52

[Download](#)

The HOLDOUT test set
PERFORMANCE of your
CLASSIFICATION model!

Your predictions will “scored” by uploading the predictions to a website

← ↻ https://jyurko.shinyapps.io/ppg_paints_metrics_app_A/

PPG Paint Colors: Holdout Performance Metrics

Please provide a .csv file that has the following columns: `id`, `y`, `outcome`, `probability`

Upload CSV File

Browse... example_preds_caret.csv

Upload complete

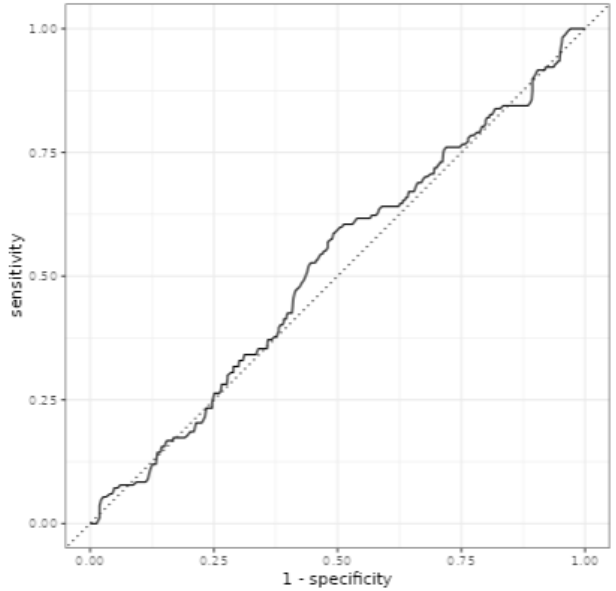
Here is a snapshot of your data:

id	y	outcome	probability
1.00	0.99	non_event	0.20
2.00	1.31	non_event	0.27
3.00	-0.01	non_event	0.25
4.00	0.56	non_event	0.25
5.00	1.00	non_event	0.19
6.00	0.55	non_event	0.25

[Performance metrics table](#) **ROC curve**

Holdout set ROC curve visualized below

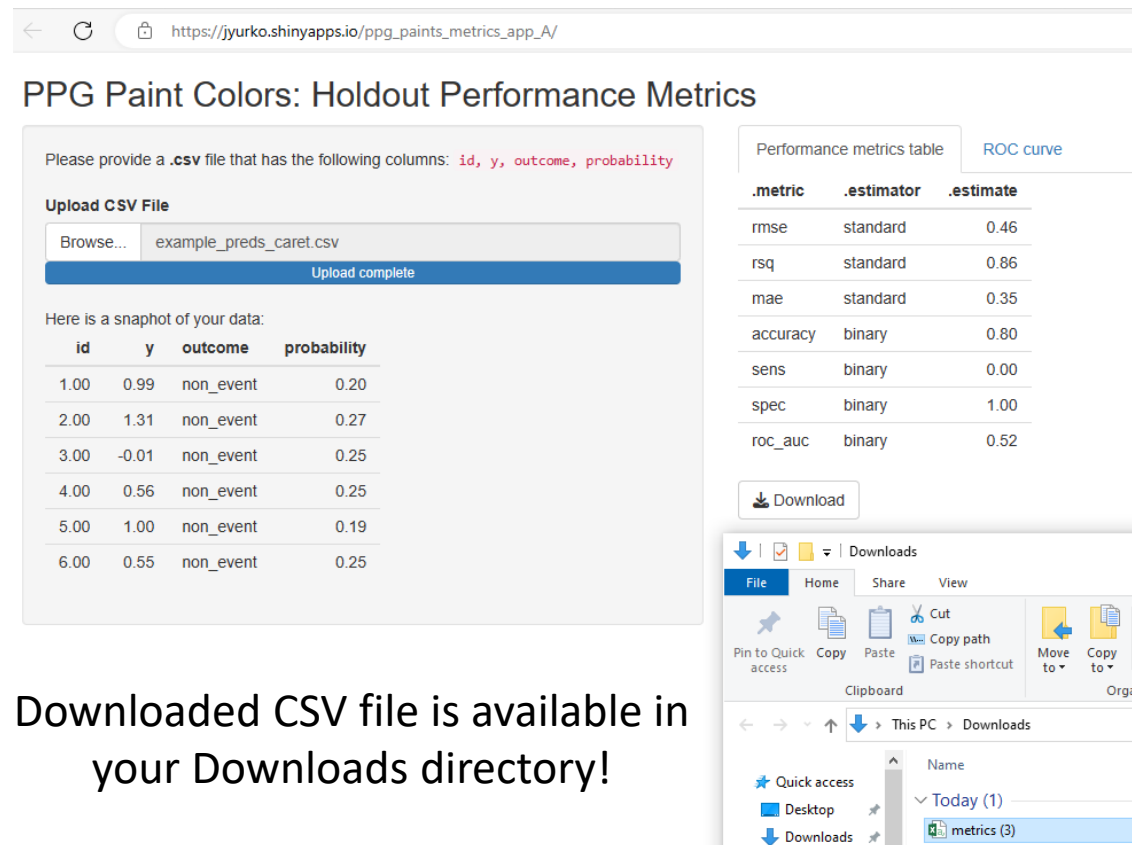
Click on the ROC curve TAB to look at the ROC curve for your CLASSIFICATION model on the HOLDOUT test set!!



The ROC curve plot displays sensitivity on the y-axis (ranging from 0.00 to 1.00) against 1 - specificity on the x-axis (ranging from 0.00 to 1.00). A solid black curve represents the model's performance, which is significantly above the dashed diagonal line (representing a random classifier). The curve starts at (0,0), rises steeply to a sensitivity of approximately 0.8 at 1-specificity of 0.2, then continues to rise more gradually towards (1,1).

Your predictions will “scored” by uploading the predictions to a website

- Press the Download button to save the performance metrics to your computer. The downloaded CSV file is named `metrics.csv`



The screenshot shows a web browser window with the URL `https://jyurko.shinyapps.io/ppg_paints_metrics_app_A/`. The page title is "PPG Paint Colors: Holdout Performance Metrics". On the left, there is a section for uploading a CSV file. It includes a text prompt: "Please provide a .csv file that has the following columns: `id`, `y`, `outcome`, `probability`". Below this is an "Upload CSV File" section with a "Browse..." button and a text input field containing "example_preds_caret.csv". A blue "Upload complete" button is visible. Below the upload section, a "Here is a snapshot of your data:" label is followed by a table with 4 columns: `id`, `y`, `outcome`, and `probability`. The table contains 6 rows of data. On the right side of the page, there are two tabs: "Performance metrics table" (selected) and "ROC curve". The "Performance metrics table" tab displays a table with 3 columns: `.metric`, `.estimator`, and `.estimate`. The table lists various metrics and their corresponding estimates. Below the table is a "Download" button. At the bottom of the screenshot, a Windows File Explorer window is open, showing the "Downloads" directory. It contains a single file named "metrics (3)".

PPG Paint Colors: Holdout Performance Metrics

Please provide a .csv file that has the following columns: `id`, `y`, `outcome`, `probability`

Upload CSV File

Browse... example_preds_caret.csv

Upload complete

Here is a snapshot of your data:

id	y	outcome	probability
1.00	0.99	non_event	0.20
2.00	1.31	non_event	0.27
3.00	-0.01	non_event	0.25
4.00	0.56	non_event	0.25
5.00	1.00	non_event	0.19
6.00	0.55	non_event	0.25

Performance metrics table ROC curve

.metric	.estimator	.estimate
rmse	standard	0.46
rsq	standard	0.86
mae	standard	0.35
accuracy	binary	0.80
sens	binary	0.00
spec	binary	1.00
roc_auc	binary	0.52

Download

Downloaded CSV file is available in your Downloads directory!

You **MUST** submit the downloaded CSV file as part of your final project submission

- The downloaded CSV file must be uploaded to Canvas along with all of your rendered HTML files and source .Rmd files.
- Do **NOT** zip files!!!!!!!!!!!!!! Upload each file.