



DS:FINAL PROJECT

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LENGTH OF STAY IN THE HOSPITAL

- Most hospital diagnoses are now accompanied by a fixed estimated average length of stay
- There is pressure for hospitals to discharge patients within a set time period
- Is this related to readmissions?



Search ID: Imin49

**"I've been here so often, they
keep a room reserved for me."**

OBJECTIVES

LENGTH OF STAY AND READMISSIONS

- Does a short length of stay result in a readmission?

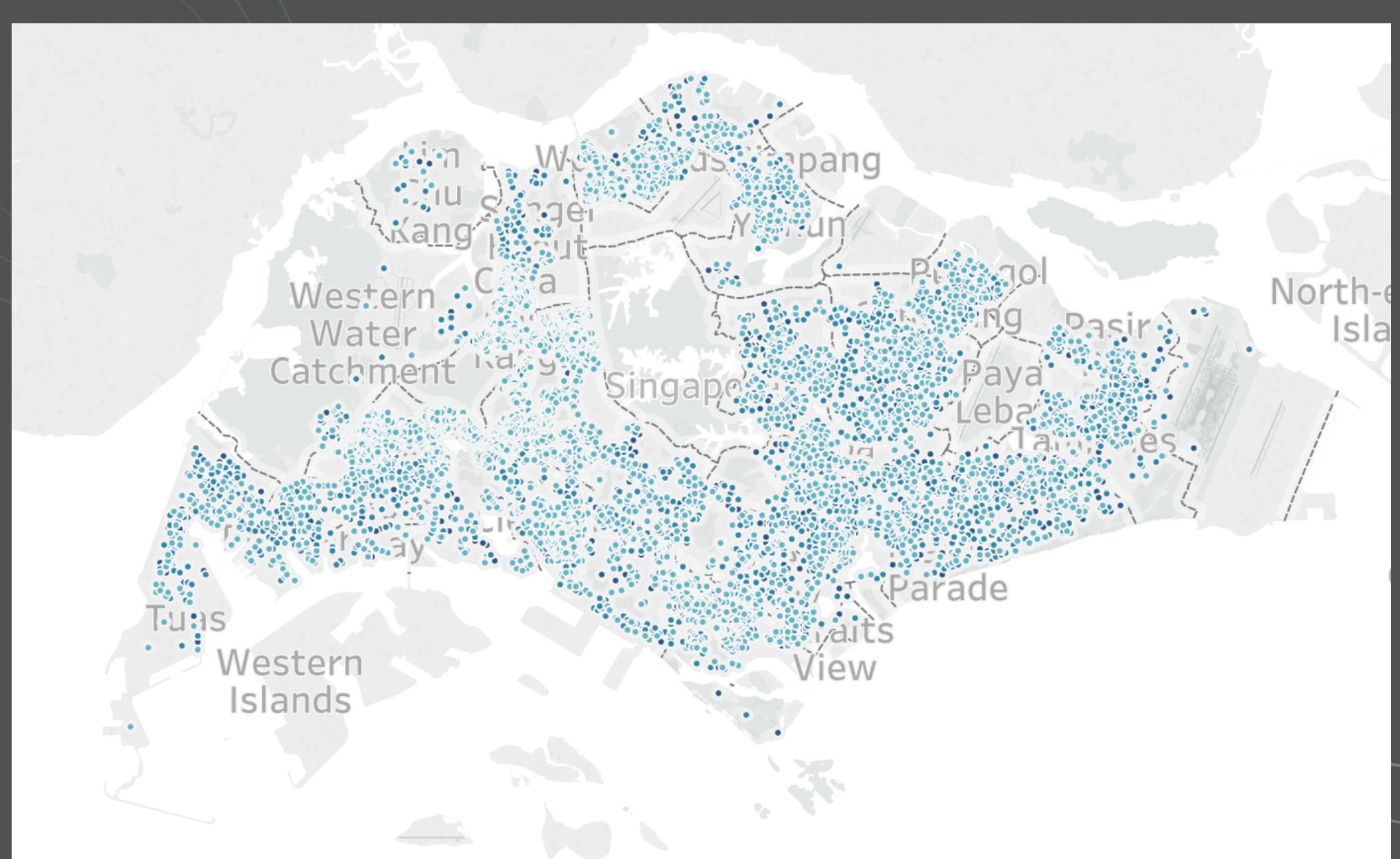
DATASET

The dataset provided information about patients admitted to a public hospital in Singapore between July 2015 to July 2017.

It was a 148601 row and 30 column dataset.

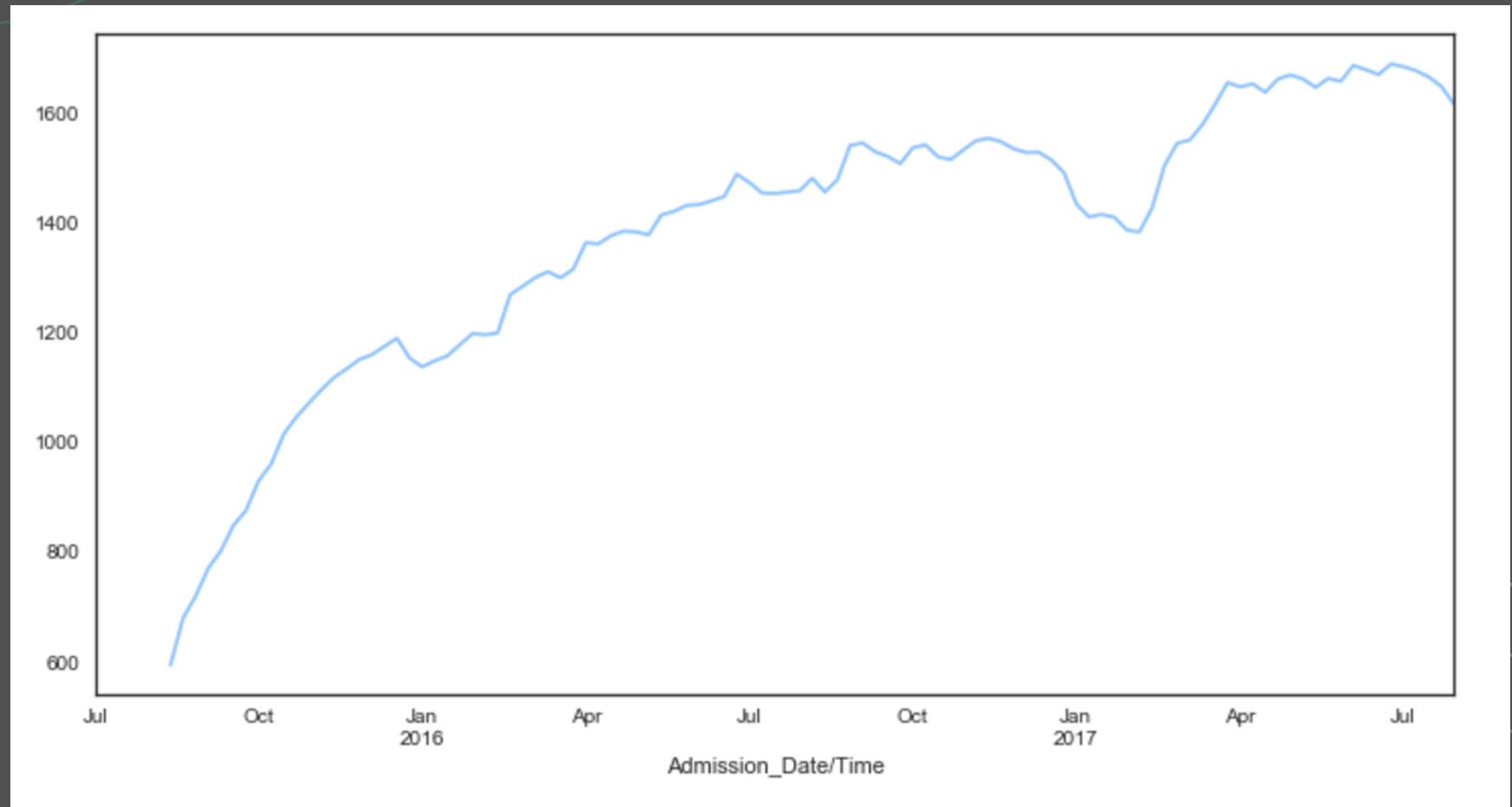
New columns have been added to create categories for some of the continuous variables, namely, for BMI, Falls Risk and MBI scores





PATIENT LOAD

ROLLING MEAN OF PATIENTS ADMITTED



MONTH/YEAR

LENGTH OF STAY
MEAN LOS IN DAYS

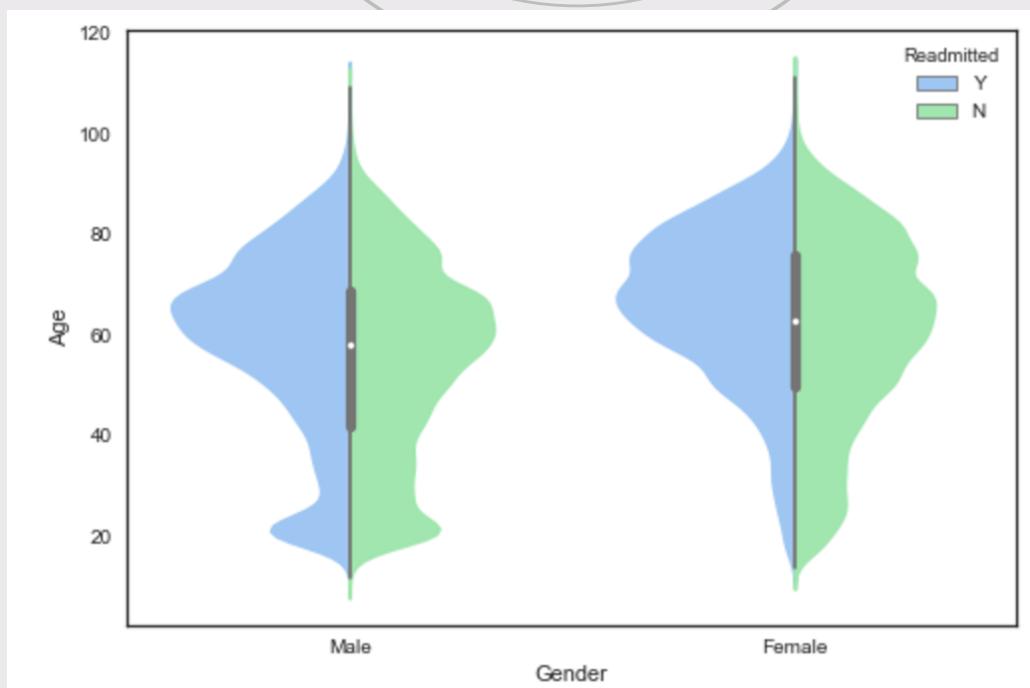
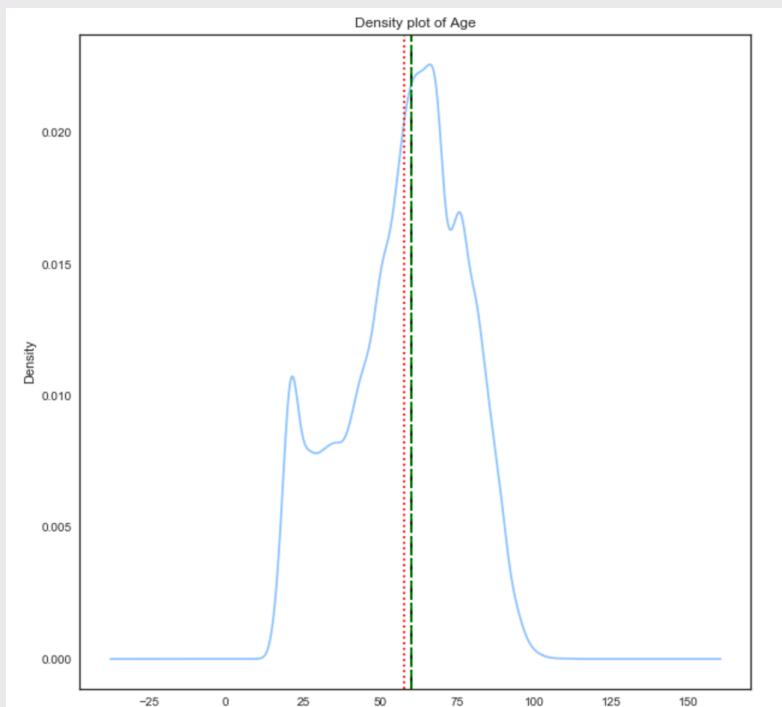
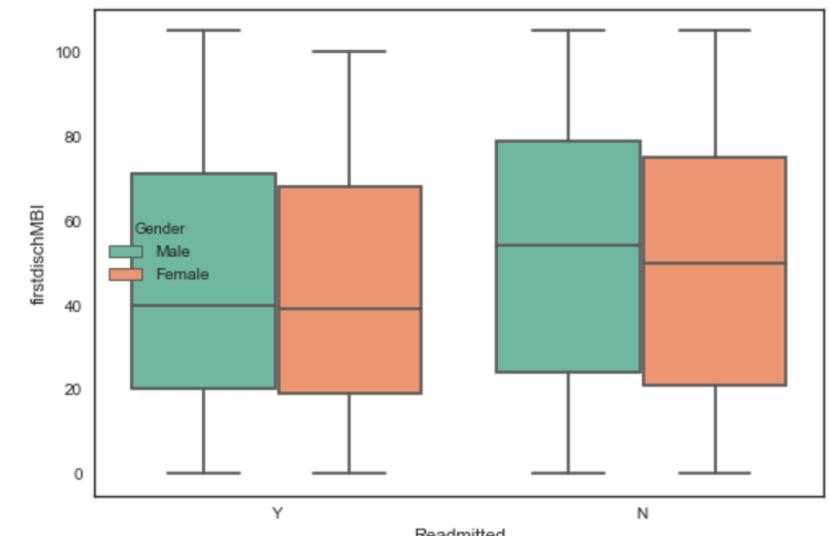
3.4

INDEX ADMISSION

READMISSION

2.9

DEMOGRAPHICS



THE ODDS



The OR for **longstayer** (whereby the LOS is $>$ than the mean LOS) = 1.43, and 0.7 if the patient is not a longstayer. Hence, a patient is more likely to be readmitted if they had a longer than average length of stay in their index admission.

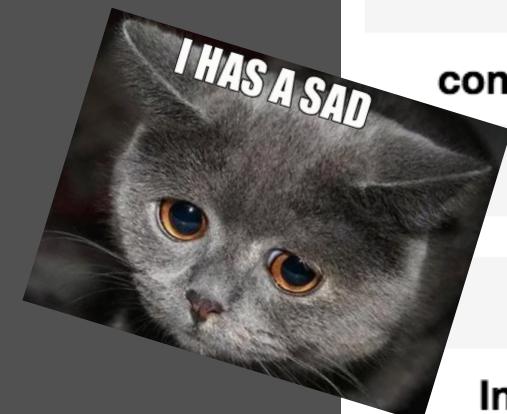
Interestingly, being **married** makes a patient **1.21** times more likely to have a readmission.

OR for readmission if patient is **overweight** is 0.54, and 0.95 if patient is **underweight**. So, ***underweight patients are more likely to be readmitted.***

Being **functionally dependent** results in a patient being 4 times more likely to be readmitted compared to functionally independent.

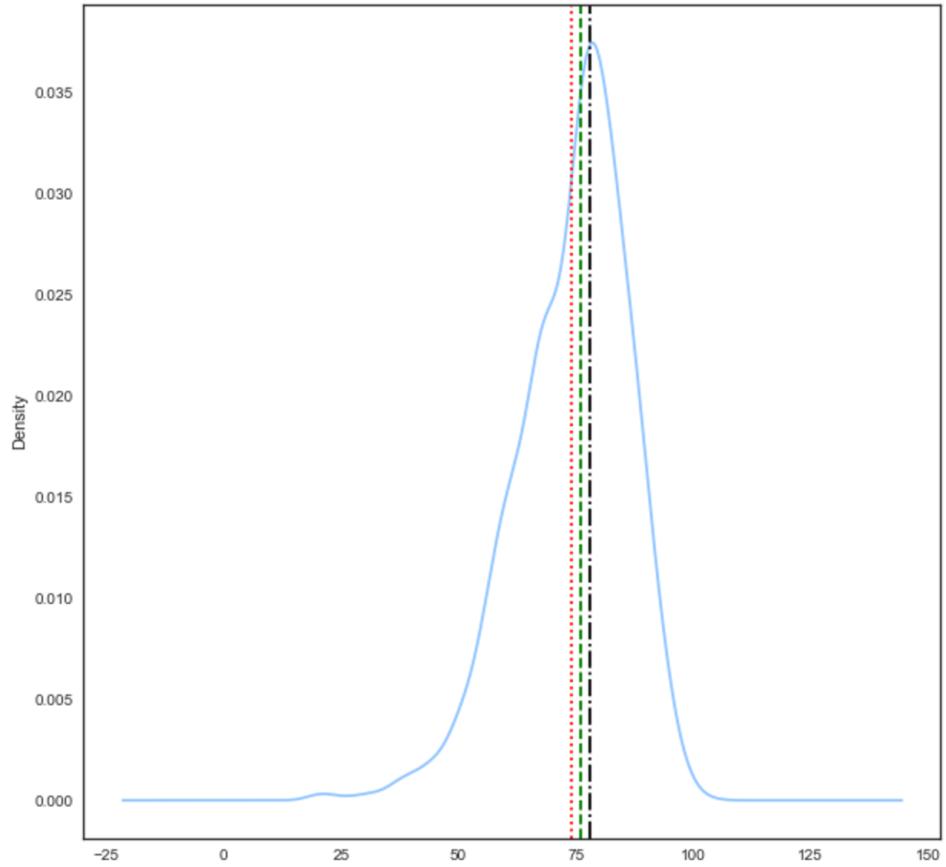
Logit Regression Results

Dep. Variable:	Readmitted_Bin	No. Observations:	8179			
Model:	Logit	Df Residuals:	8173			
Method:	MLE	Df Model:	5			
Date:	Fri, 04 Aug 2017	Pseudo R-squ.:	0.01872			
Time:	21:49:09	Log-Likelihood:	-3070.6			
converged:	True	LL-Null:	-3129.2			
		LLR p-value:	1.271e-23			
	coef	std err	z	P> z	[0.025	0.975]
Intercept	-2.2544	0.282	-7.985	0.000	-2.808	-1.701
Age	0.0095	0.003	3.667	0.000	0.004	0.015
firstdischMBI	-0.0083	0.001	-7.344	0.000	-0.011	-0.006
first_BMI	0.0025	0.006	0.445	0.656	-0.009	0.014
LongStayer_1	0.2350	0.099	2.377	0.017	0.041	0.429
LOS	-0.0141	0.003	-5.173	0.000	-0.019	-0.009



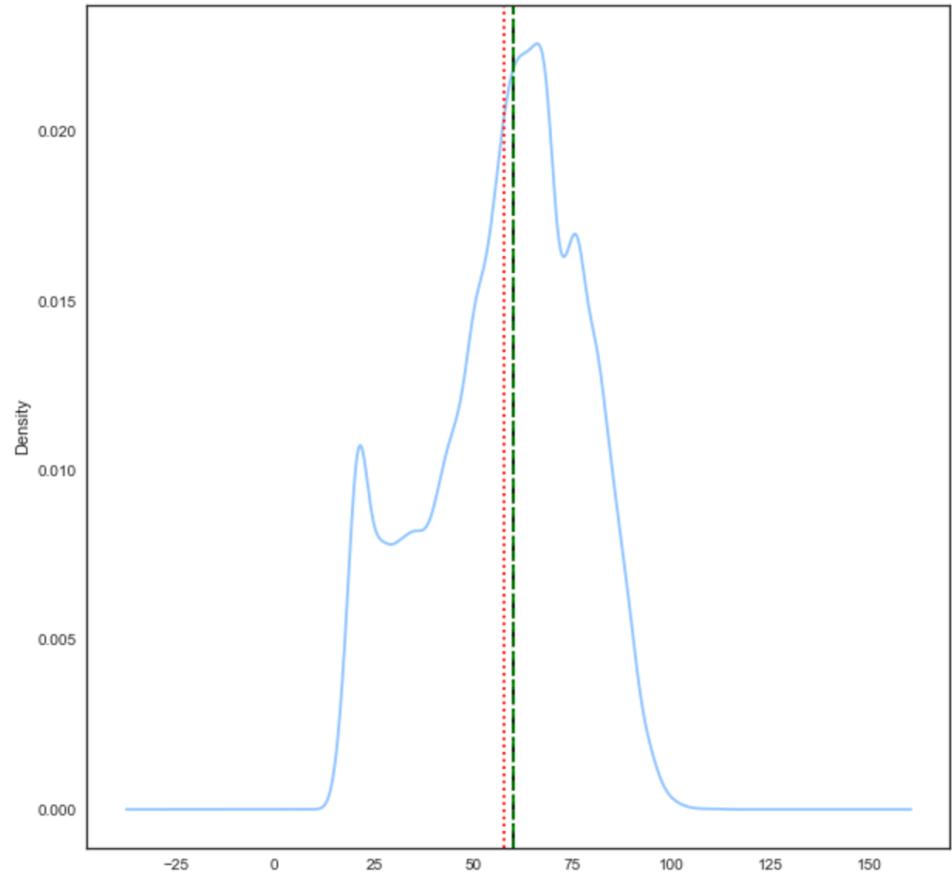
REHABILITATION

Density plot of Age



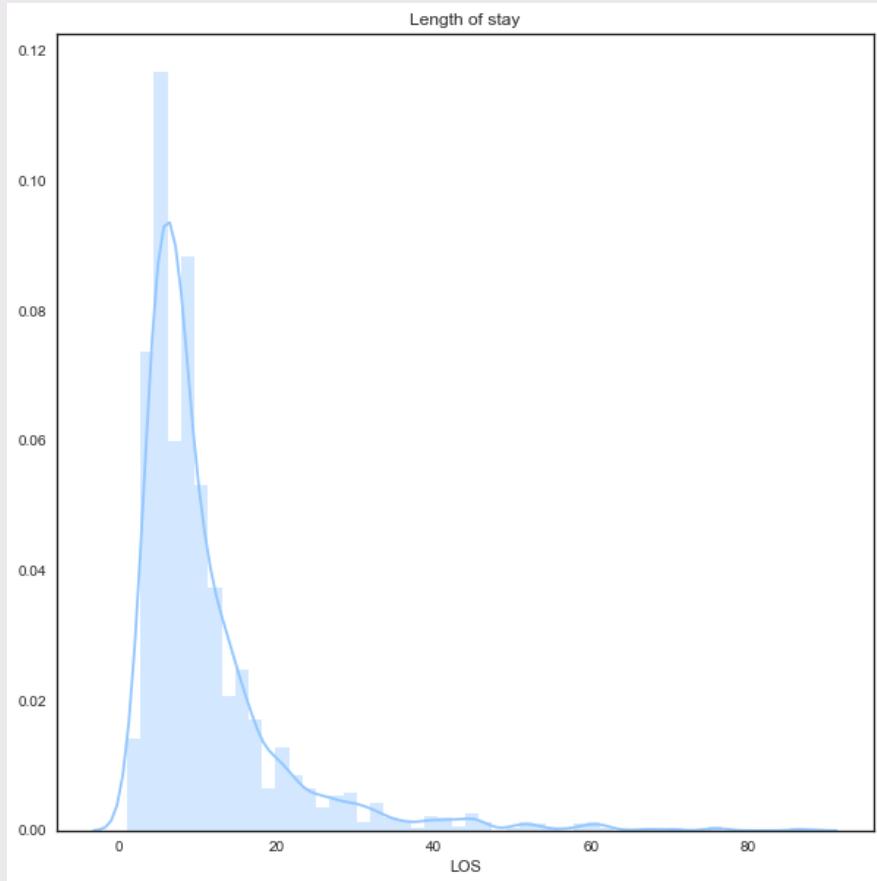
Readmitted for rehab

Density plot of Age



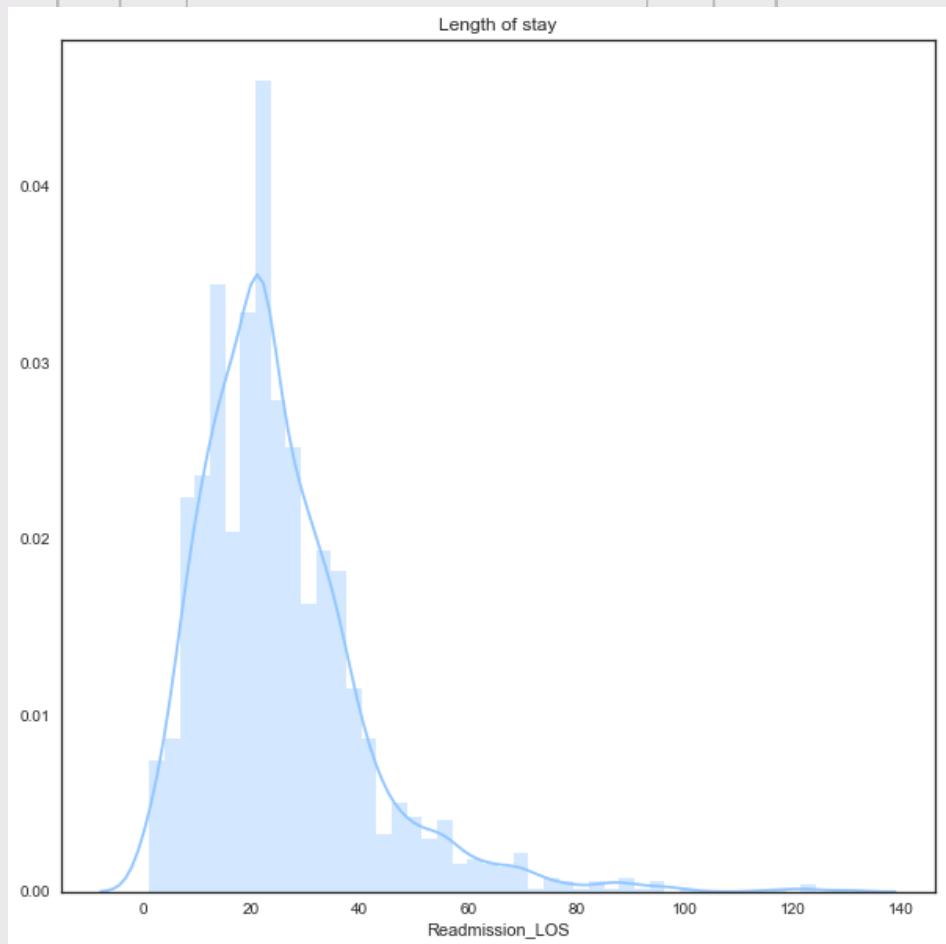
Readmitted (all causes)

DEMOGRAPHICS

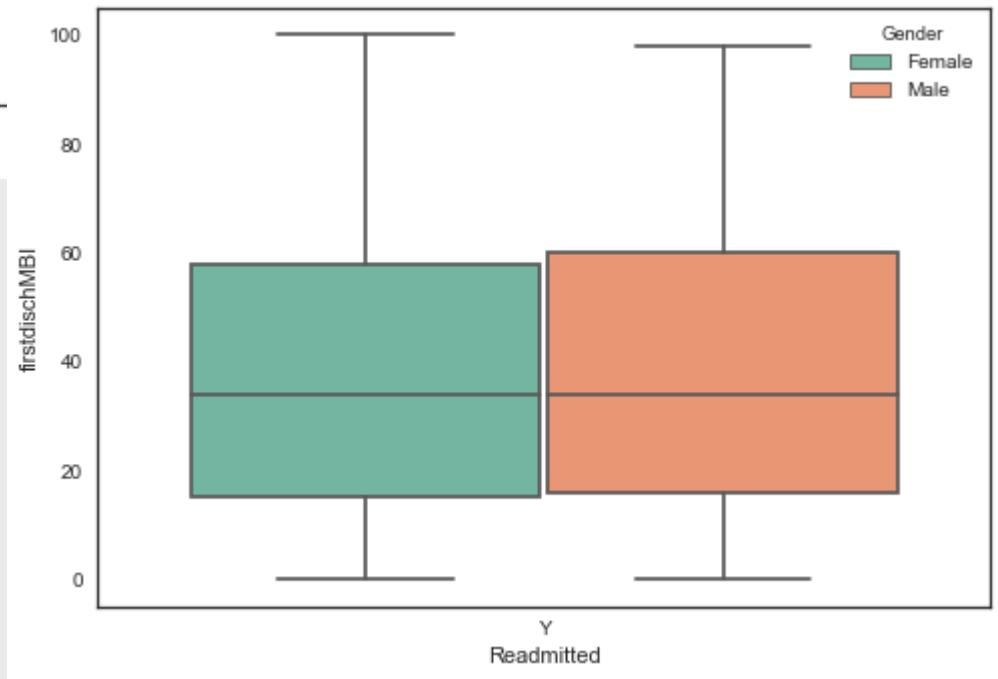
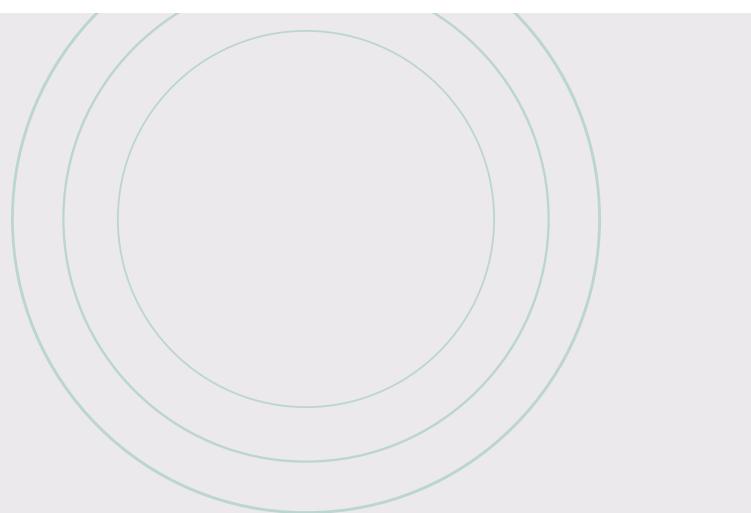
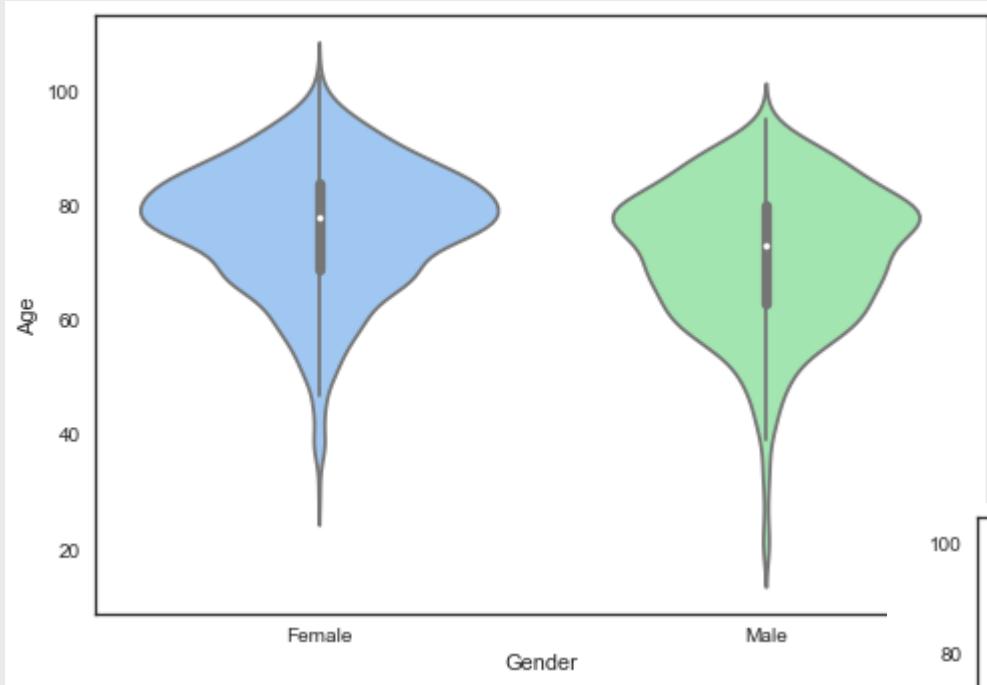


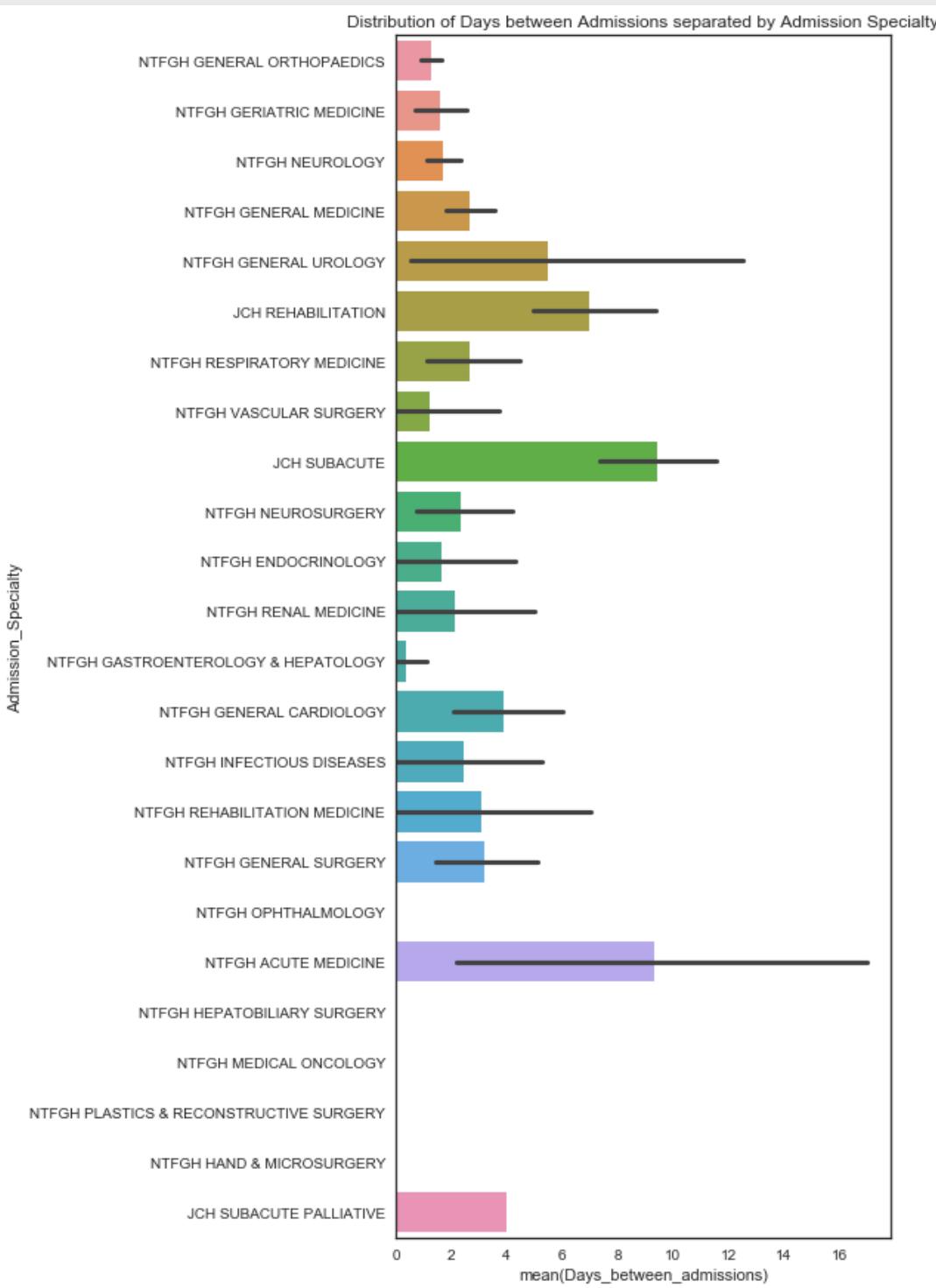
Mean Index Length of Stay
11 days

Mean Readmission Length of Stay
25.1 days

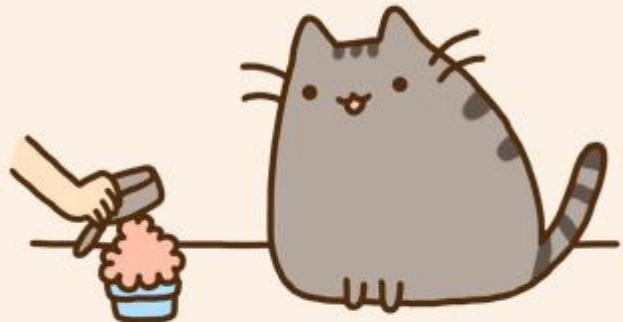


DEMOGRAPHICS

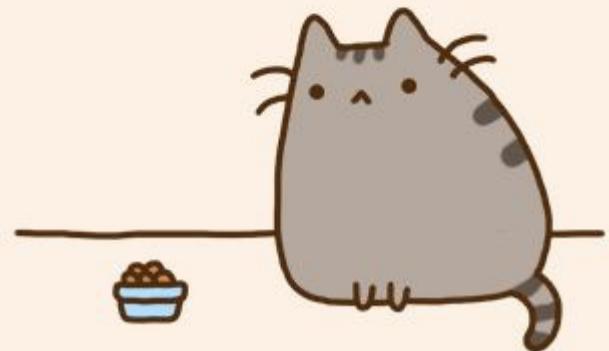




Expectation:



Reality:



Hermione

Pusheen.Tumblr

<https://github.com/littlefrolick>