

	Customer Age	Customer Gender	Product Purchased	Date of Purchase	Ticket Type	Ticket Subject	Ticket Description	Ticket Status	Resolution	Ticket Priority	Ticket Channel	Customer Satisfaction Rating	Resolution_Time_Hours	Satisfaction_Level
2	48	2	10	2020-07-14	4	8	53	0	343	2	3	3.0	6.850000	2
3	27	0	25	2020-11-13	0	0	627	0	2549	2	3	3.0	-5.533333	2
4	67	0	5	2020-02-04	0	3	188	0	2657	2	1	1.0	19.683333	1
10	48	1	30	2021-01-19	1	3	1323	0	1368	1	2	1.0	-17.916667	1
11	51	1	27	2021-10-24	2	15	360	0	1366	1	0	1.0	-2.633333	1

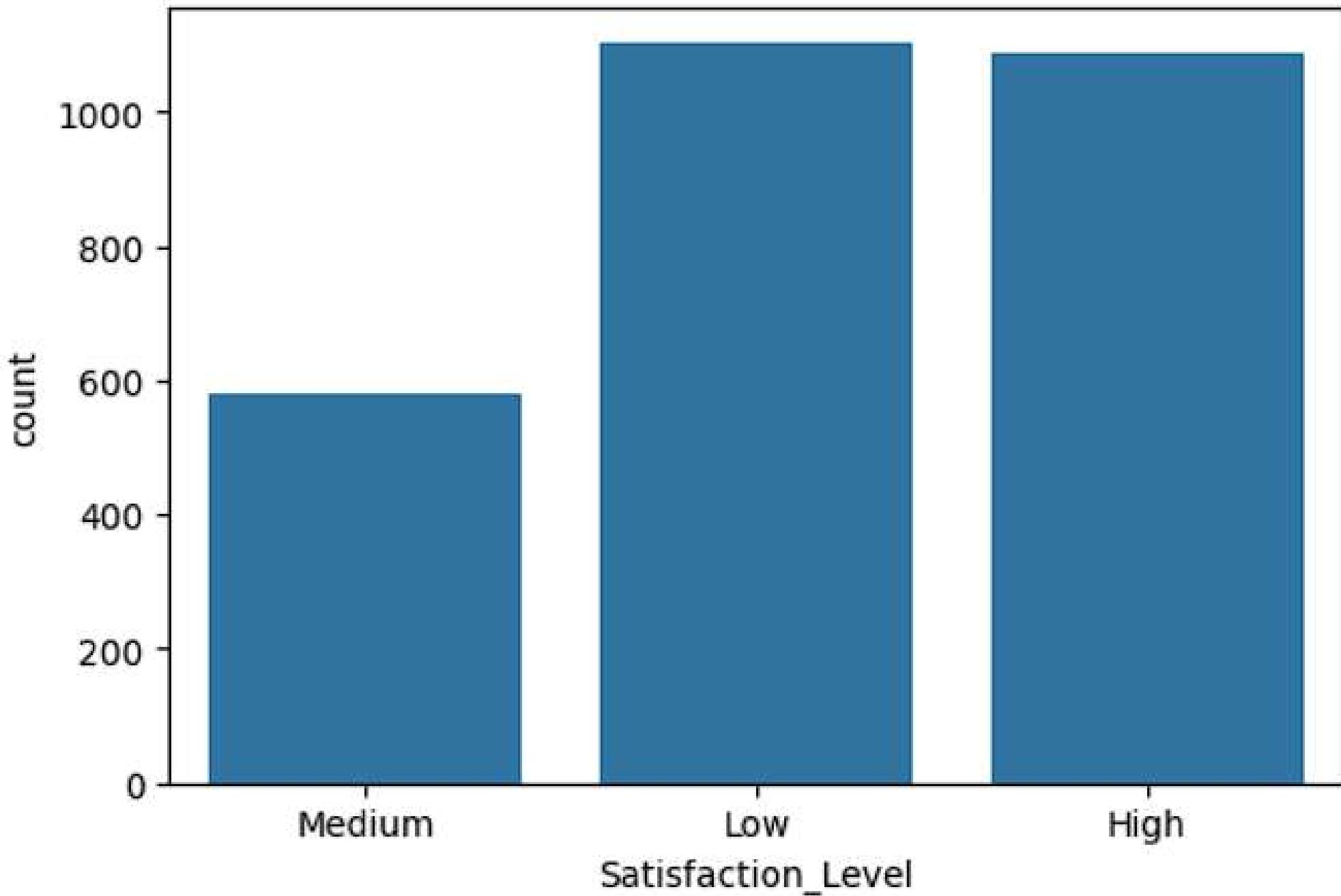
Comprehensive Customer Support & Ticket Management System																			
Ticket ID	Customer Name	Customer Email	Customer Age	Customer Gender	Product Purchased	Date of Purchase	Ticket Type	Ticket Subject	Ticket Description	Ticket Status	Resolution	Ticket Priority	Ticket Channel	First Response Time	Historical Data Analysis				
0	1	Marisa Obrien	carrollallison@example.com	32	Other	GoPro Hero	2021-03-22	Technical issue	I'm having an issue with the {product_purchase...}	Pending Customer Response	NaN	Critical	Social media	2023-12:15	Mean Resolution Time (hrs)	4.5	Total Tickets Opened	120	
1	2	Jessica Rios	clarkeashley@example.com	42	Female	LG Smart TV	2021-05-22	Technical issue	Peripheral compatibility	I'm having an issue with the {product_purchase...}	Pending Customer Response	NaN	Critical	Chat	2023-16:45	Mean Resolution Time (hrs)	3.8	Total Tickets Opened	110
2	3	Christopher Robbins	gonzalestracy@example.com	48	Other	Dell XPS	2020-07-14	Technical issue	Network problem	I'm facing a problem with my {product_purchase...}	Closed	Case maybe show recently my computer follow.	Low	Social media	2023-11:14	Mean Resolution Time (hrs)	2.2	Total Tickets Opened	100
3	4	Christina Dillon	bradleyolson@example.org	27	Female	Microsoft Office	2020-11-13	Billing inquiry	Account access	I'm having an issue with the {product_purchase...}	Closed	Try capital clearly never color toward story.	Low	Social media	2023-07:25	Mean Resolution Time (hrs)	1.8	Total Tickets Opened	90
4	5	Alexander Carroll	bradleymark@example.com	67	Female	Autodesk AutoCAD	2020-02-04	Billing inquiry	Data loss	I'm having an issue with the {product_purchase...}	Closed	West decision evidence bit.	Low	Email	2023-00:12	Mean Resolution Time (hrs)	1.5	Total Tickets Opened	80

---

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8469 entries, 0 to 8468
Data columns (total 17 columns):
 #   Column           Non-Null Count Dtype
 ---  -----
 0   Ticket ID        8469 non-null   int64
 1   Customer Name    8469 non-null   object
 2   Customer Email   8469 non-null   object
 3   Customer Age     8469 non-null   int64
 4   Customer Gender  8469 non-null   object
 5   Product Purchased 8469 non-null   object
 6   Date of Purchase 8469 non-null   object
 7   Ticket Type      8469 non-null   object
 8   Ticket Subject   8469 non-null   object
 9   Ticket Description 8469 non-null   object
 10  Ticket Status    8469 non-null   object
 11  Resolution       2769 non-null   object
 12  Ticket Priority  8469 non-null   object
 13  Ticket Channel   8469 non-null   object
 14  First Response Time 5650 non-null   object
 15  Time to Resolution 2769 non-null   object
 16  Customer Satisfaction Rating 2769 non-null   float64
dtypes: float64(1), int64(2), object(14)
memory usage: 1.1+ MB
```

	Ticket ID	Customer Age	Customer Satisfaction Rating
count	8469.000000	8469.000000	2769.000000
mean	4235.000000	44.026804	2.991333
std	2444.934048	15.296112	1.407016
min	1.000000	18.000000	1.000000
25%	2118.000000	31.000000	2.000000
50%	4235.000000	44.000000	3.000000
75%	6352.000000	57.000000	4.000000
max	8469.000000	70.000000	5.000000

# Customer Satisfaction Level Distribution



Logistic Regression Accuracy: 0.4055354993983153

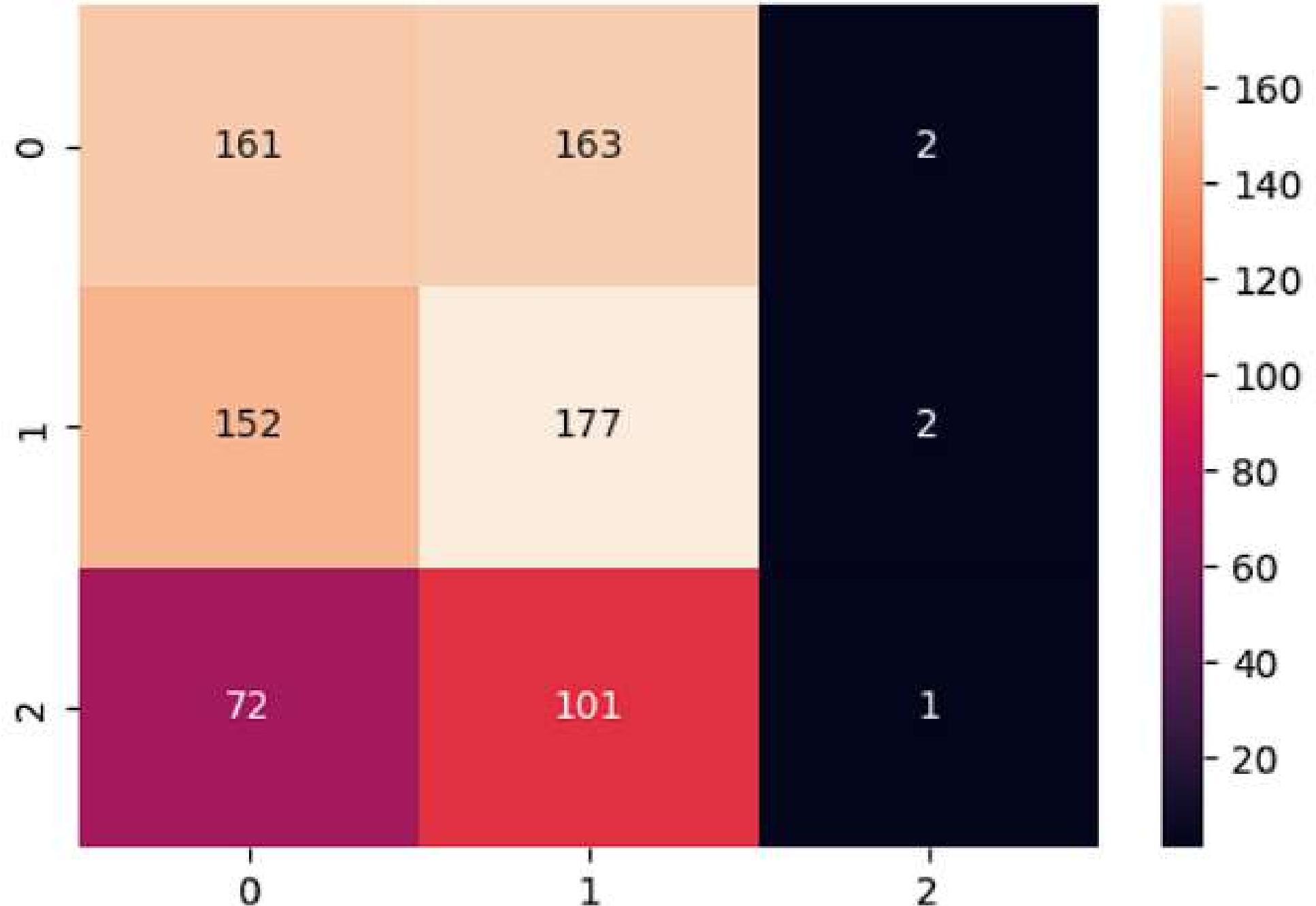
	precision	recall	f1-score	support
0	0.39	0.48	0.43	326
1	0.42	0.55	0.47	331
2	0.00	0.00	0.00	174
accuracy			0.41	831
macro avg	0.27	0.34	0.30	831
weighted avg	0.32	0.41	0.36	831

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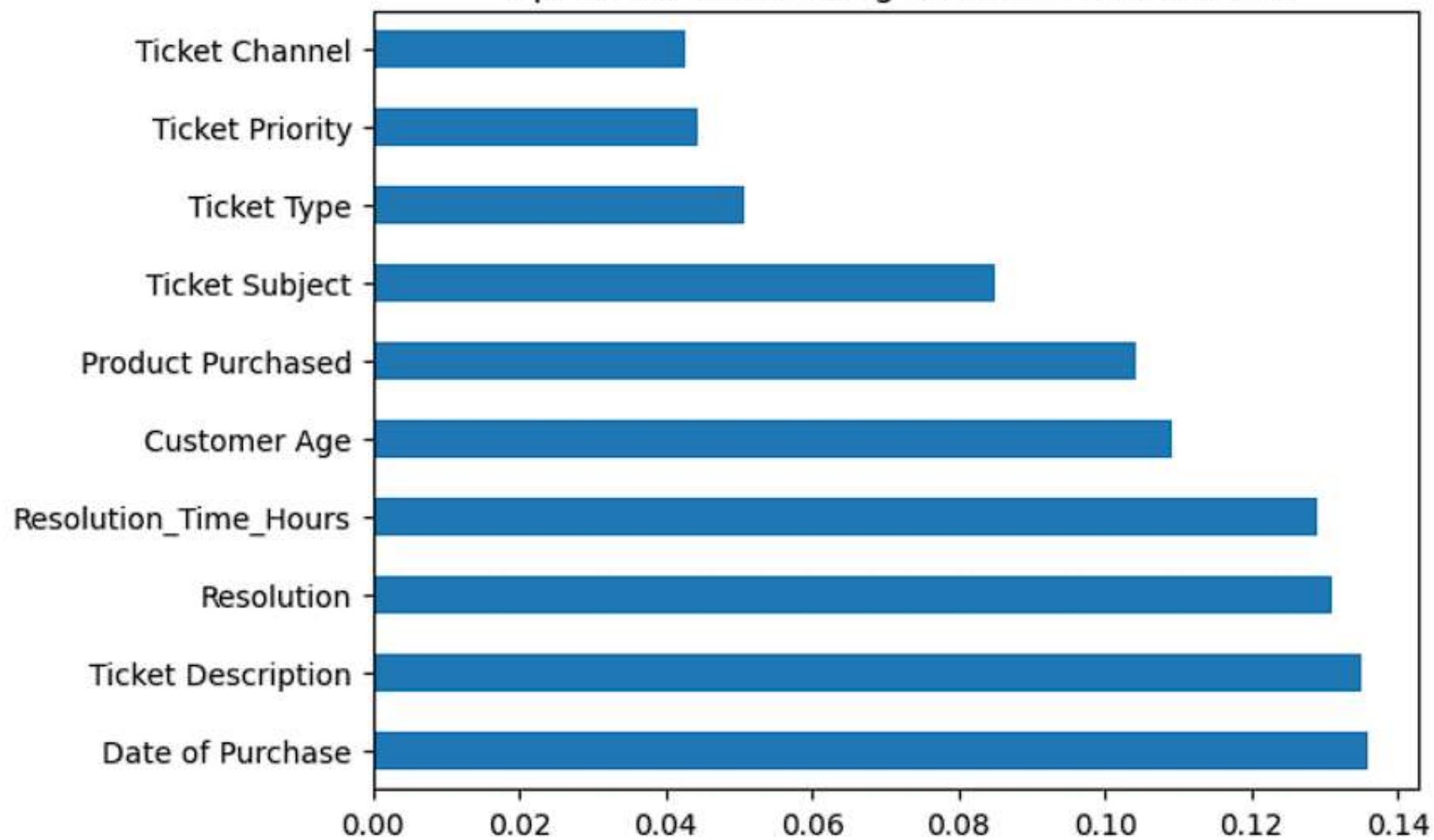
Random Forest Accuracy: 0.40794223826714804

	precision	recall	f1-score	support
0	0.42	0.49	0.45	326
1	0.40	0.53	0.46	331
2	0.20	0.01	0.01	174
accuracy			0.41	831
macro avg	0.34	0.34	0.31	831
weighted avg	0.37	0.41	0.36	831

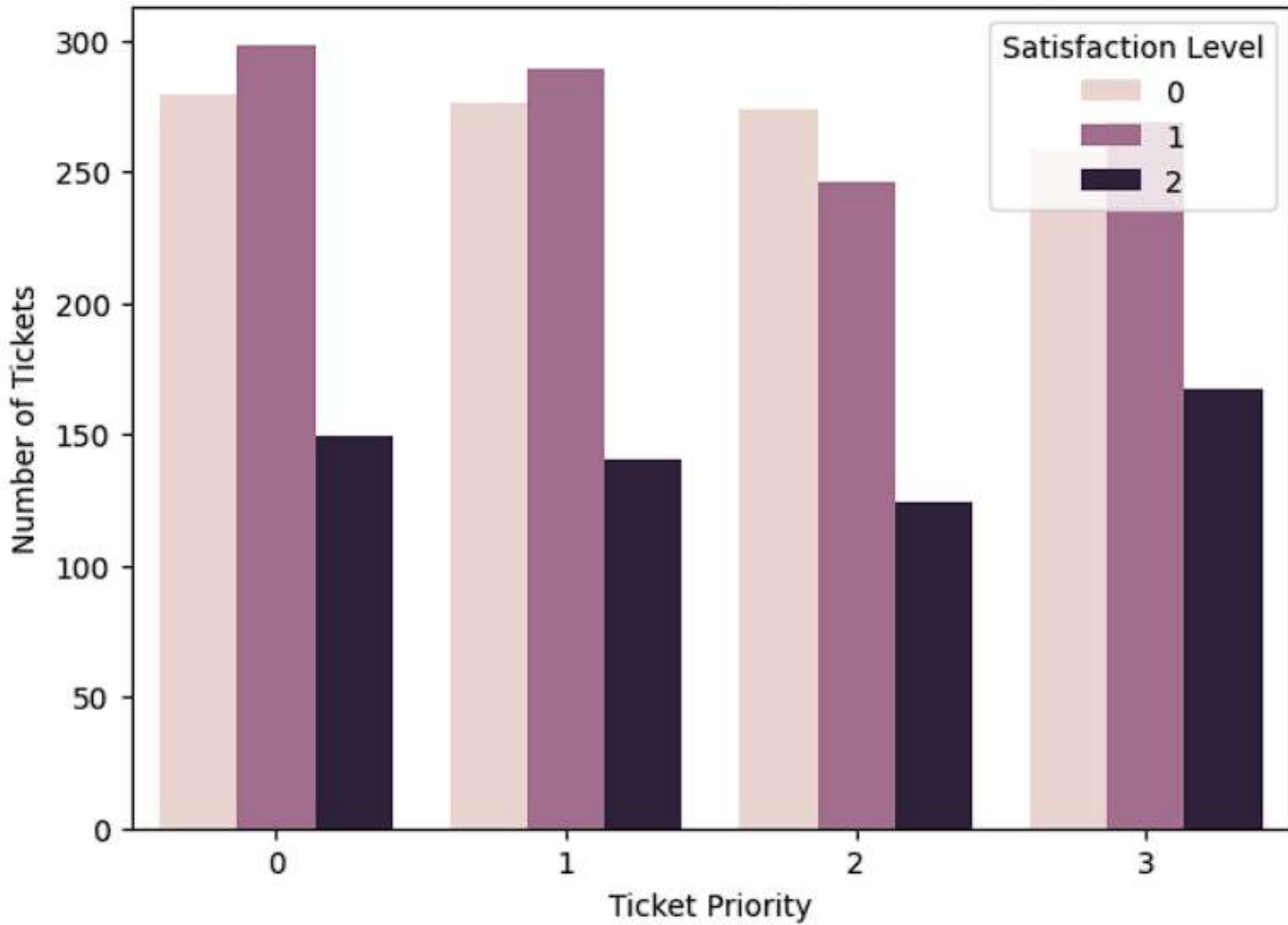
# Confusion Matrix - Random Forest



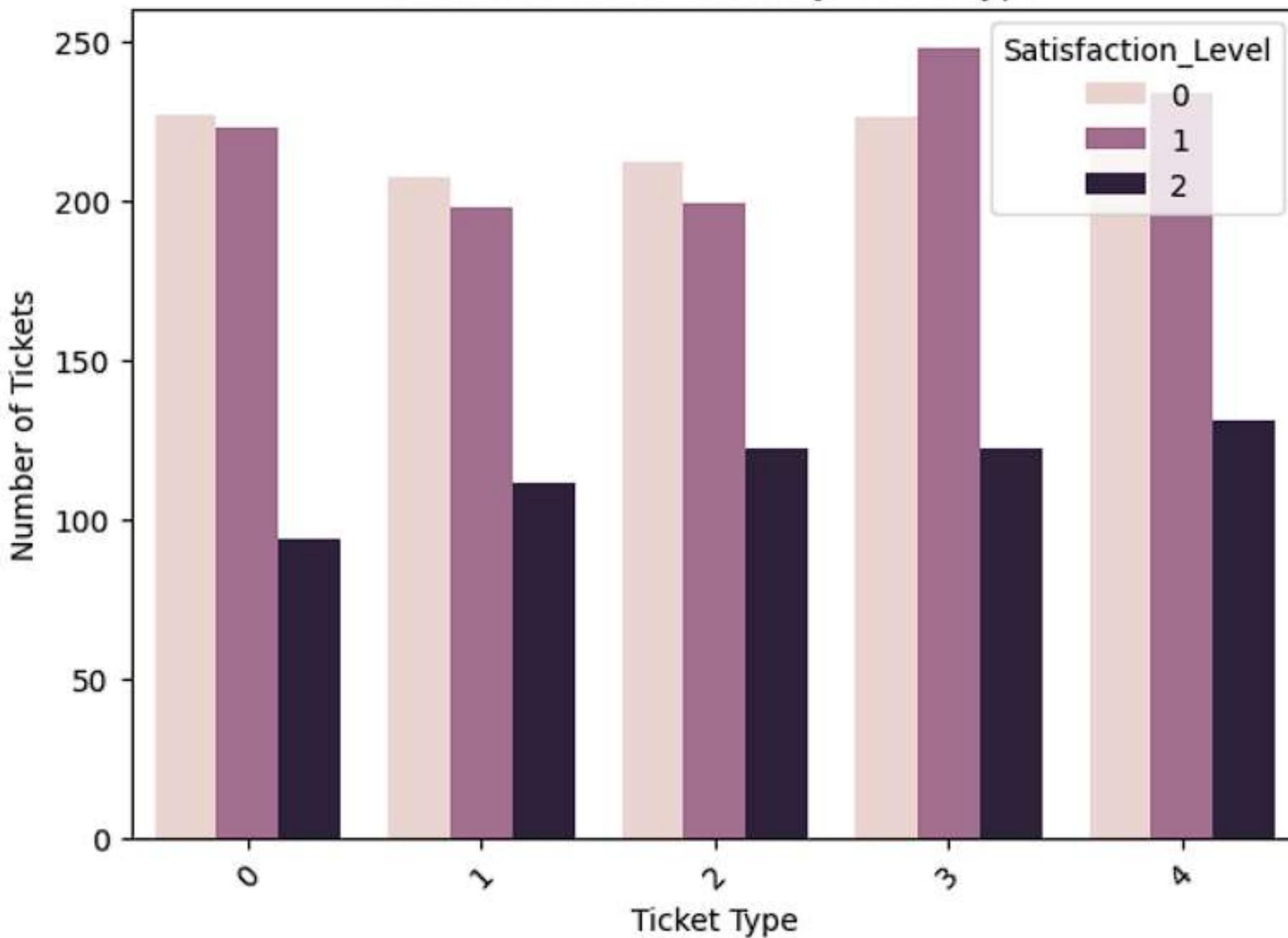
### Top Factors Influencing Customer Satisfaction



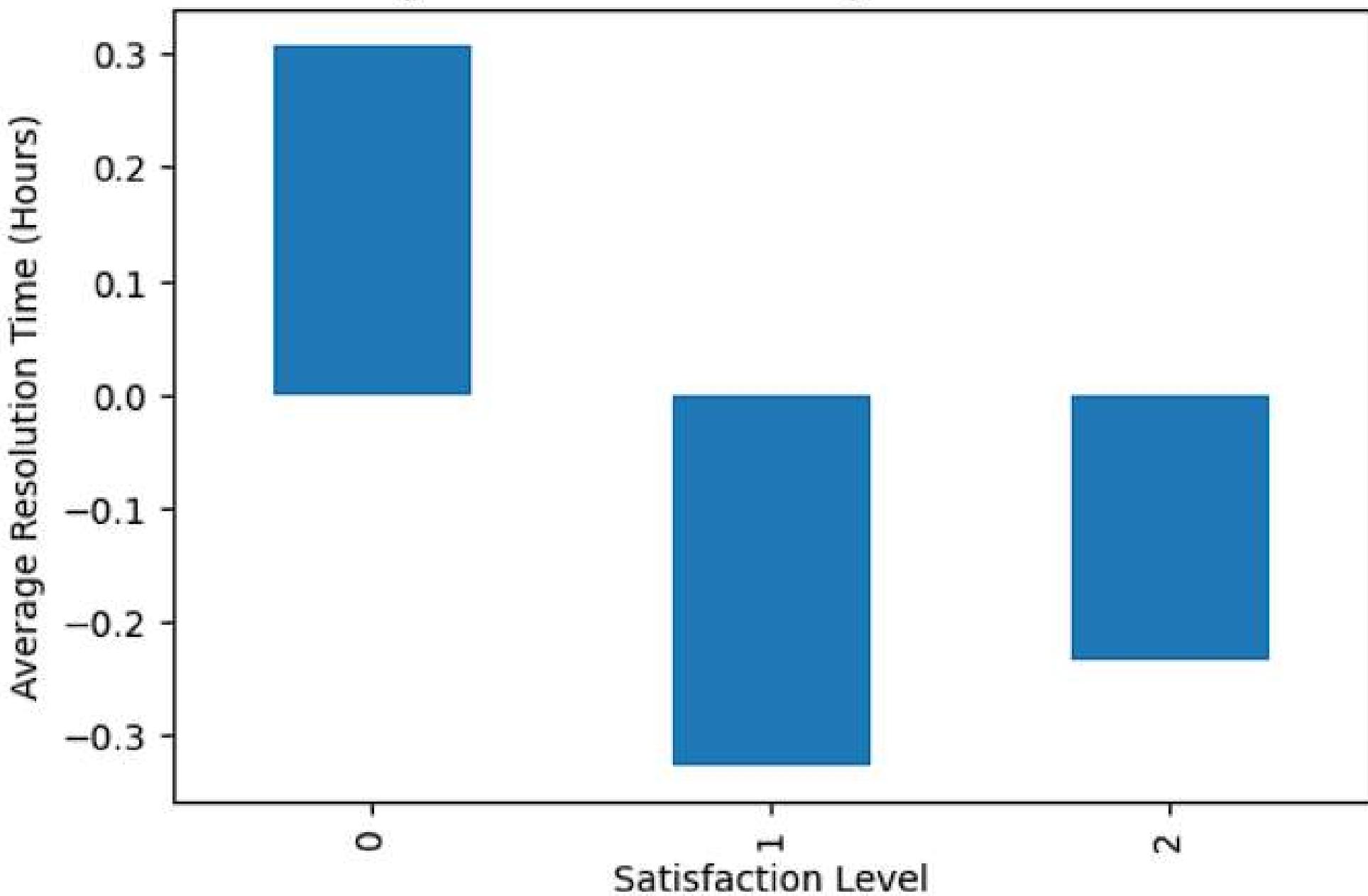
## Customer Satisfaction by Ticket Priority



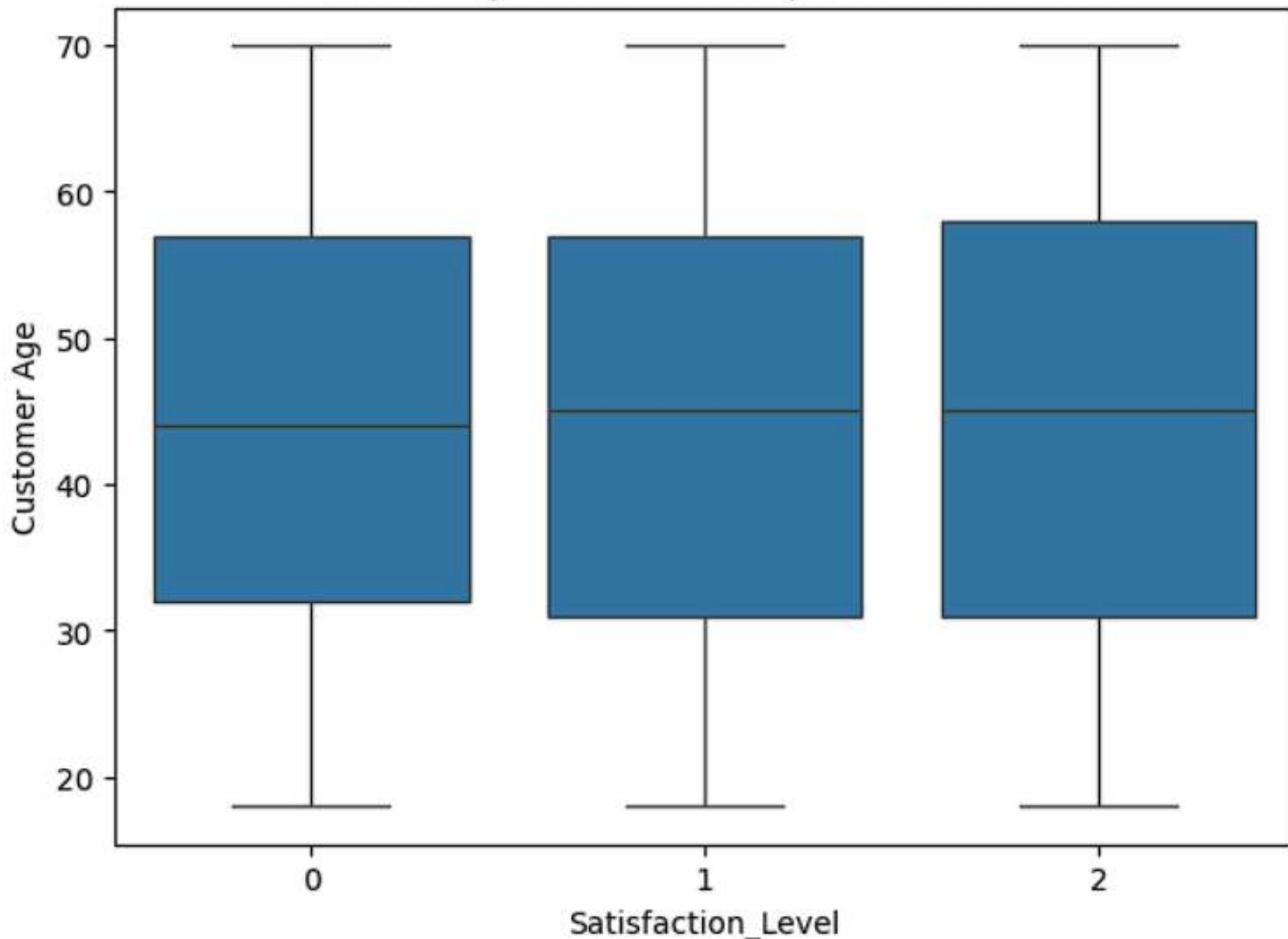
## Customer Satisfaction by Ticket Type



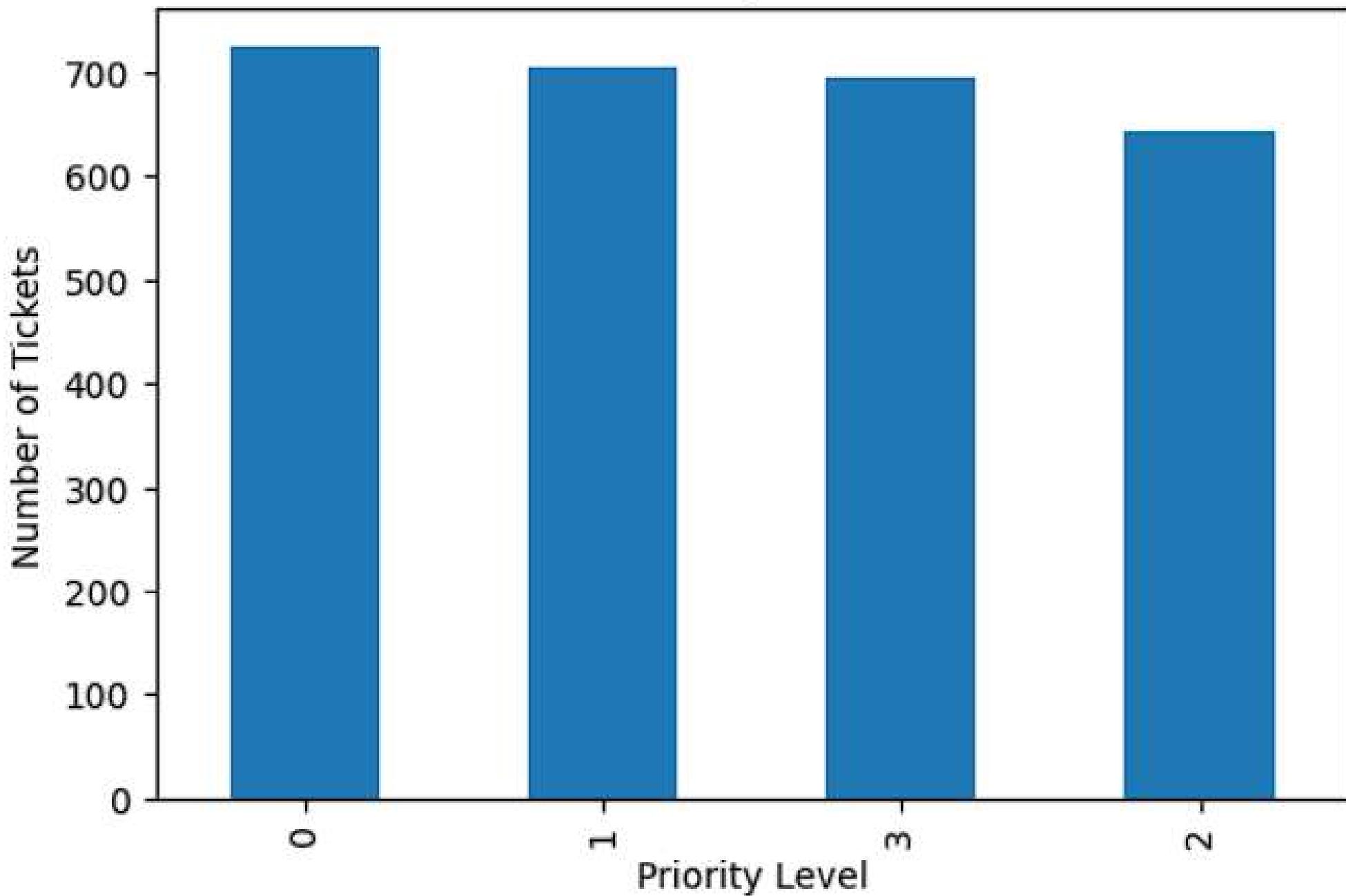
## Average Resolution Time by Satisfaction Level



## Customer Age Distribution by Satisfaction Level



## Ticket Priority Distribution



## Correlation Heatmap

