MIMIC Visualization

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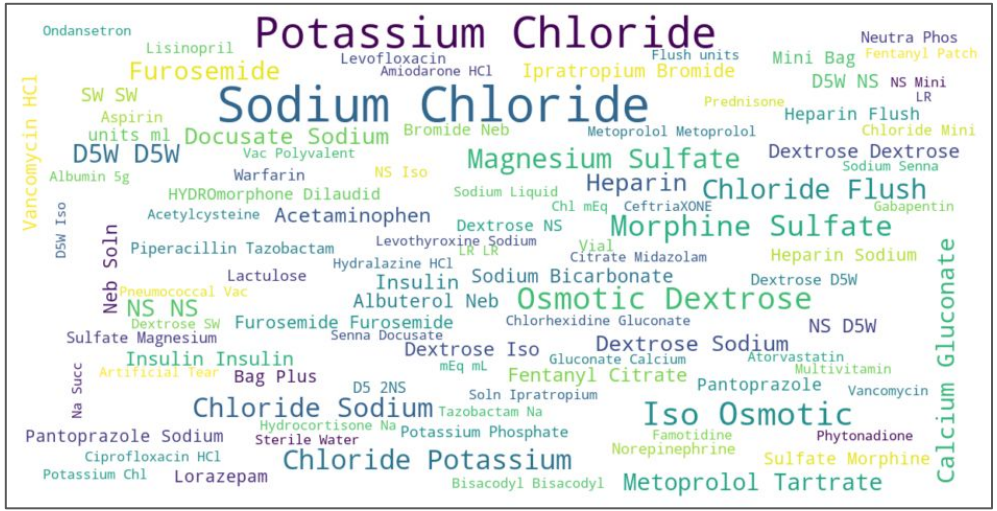
Visualization-1 (Word of Cloud of prescribed medicines)

What does it convey?

- Word cloud is new type of visualization where word's font size are decided by their frequency distribution.
- In this graph we can Sodium Chloride and Potassium Chloride are the most common. Which is widely used for oral rehydration and to treat hypokalemia.

How to create this?

- Use ***wordcloud*** python library
- Extract drugs column from prescription table and pass it as one string text to Wordcloud like below




```
wordcloud = WordCloud(
    max_font_size=60, max_words=100, background_color="white", width=1200, height=600
).generate(' '.join(prescriptions['drug']))

plt.figure(figsize=(14, 6))
plt.imshow(wordcloud, interpolation="bilinear")
plt.axis("off")
plt.show()
```

Visualization-2 (Frequency Distribution of Top 15 Medicines by Gender)

What does it convey?

- Frequency Distribution of medicines by Genders.
- In this graph we can find some interesting insights such as Insulin being prescribed more to females than males.

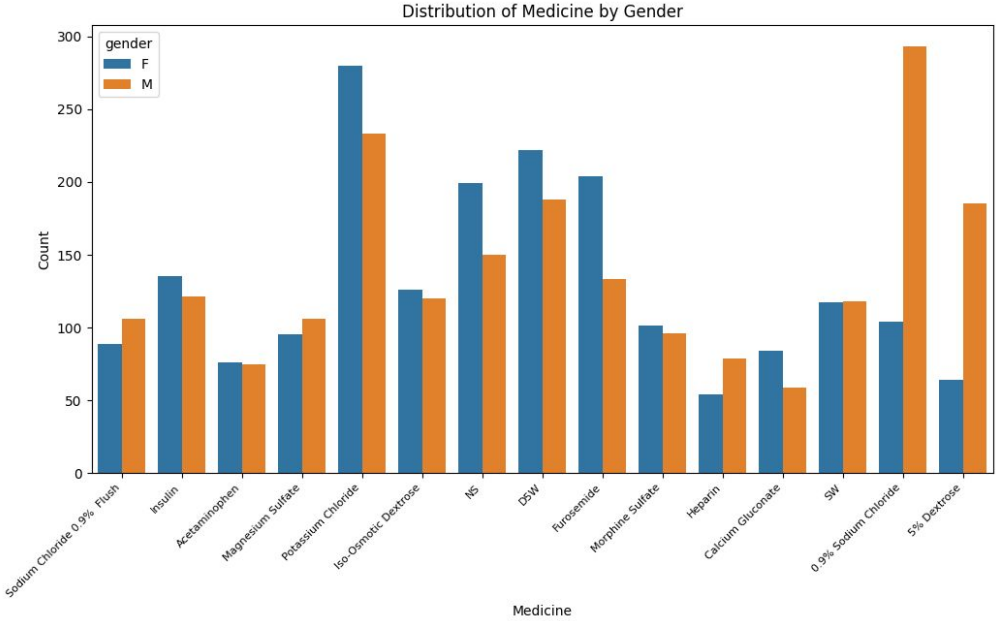
How to create this?

- Join prescription and patient table on column “subject_id”
- Filter for top15 medicines
- Use seaborn to create countplot

```
df_patient_prescription = pd.merge(
    patients, prescriptions, on='subject_id', how='inner'
)
top_medicines = df_patient_prescription["drug"].value_counts().nlargest(15).index
df_filtered = df_patient_prescription[
    df_patient_prescription["drug"].isin(top_medicines)
]

# Set up the figure
plt.figure(figsize=(12, 6))

sns.countplot(data=df_filtered, x="drug", hue="gender")
plt.title("Distribution of Medicine by Gender")
plt.xlabel("Medicine")
plt.ylabel("Count")
plt.xticks(rotation=45, ha="right", fontsize=8)  # Rotate and align labels
plt.show()
```



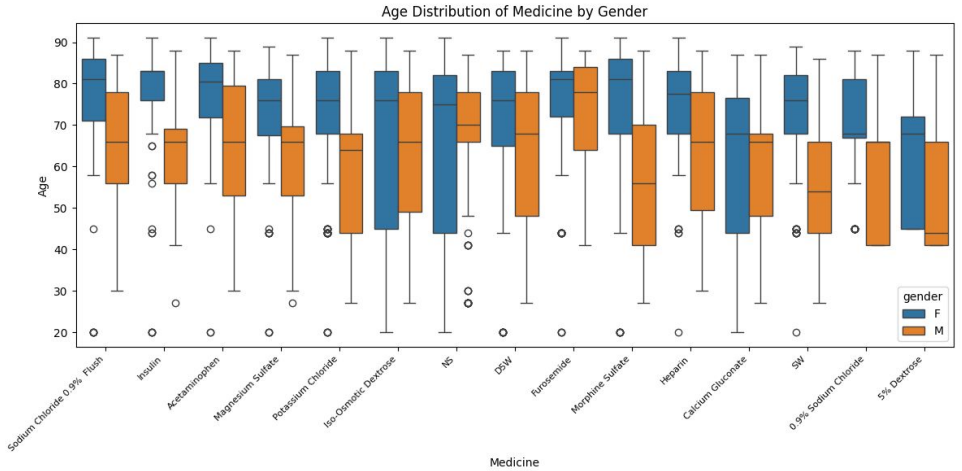
Visualization-3 (Age Distribution of medicines by Gender)

What does it convey?

- How different age scale and frequency distribution of medicine is related.
- In this graph we can see that Insulin is consumed by young men than females.

How to create this?

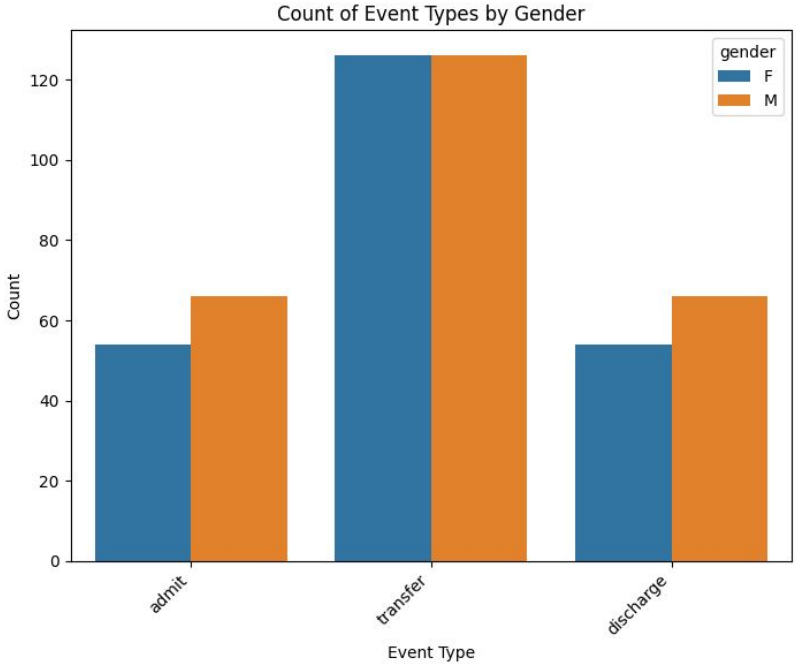
- Join prescription and patient table on column “subject_id”
- Filter for top15 medicines
- Use seaborn to create boxplot

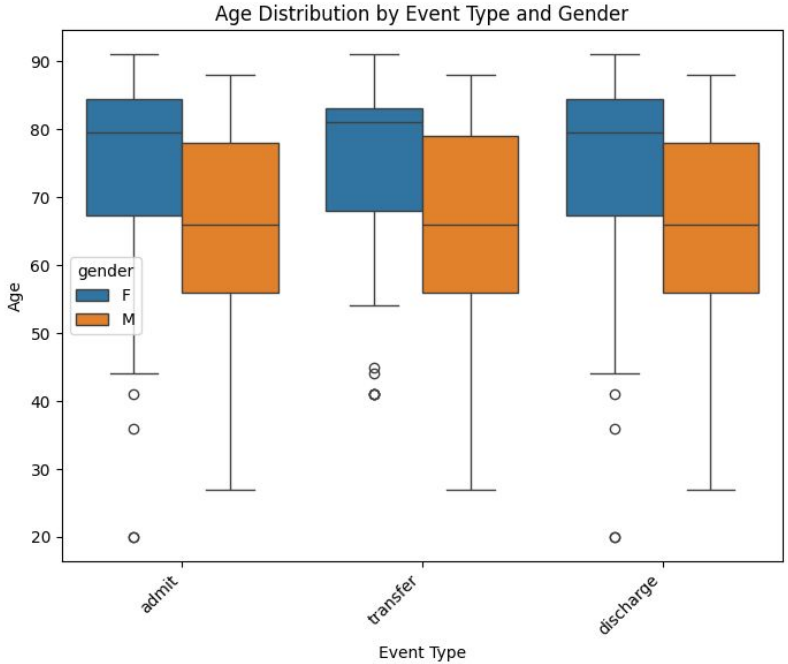



```
plt.figure(figsize=(12, 6))
sns.boxplot(data=df_filtered, x="drug", y="age", hue="gender")
plt.title("Age Distribution of Medicine by Gender")
plt.xlabel("Medicine")
plt.ylabel("Age")
plt.xticks(rotation=45, ha="right", fontsize=8)  # Rotate and align labels

plt.tight_layout()
plt.show()
```

Visualization-4 (Patient transfer by age and gender)





Visualization-4 (Continued..)

What does it convey?

- Answer questions like Is there any relation between patient's transfer events and gender?
- Is there any relation between patient's transfer events and age along with gender?
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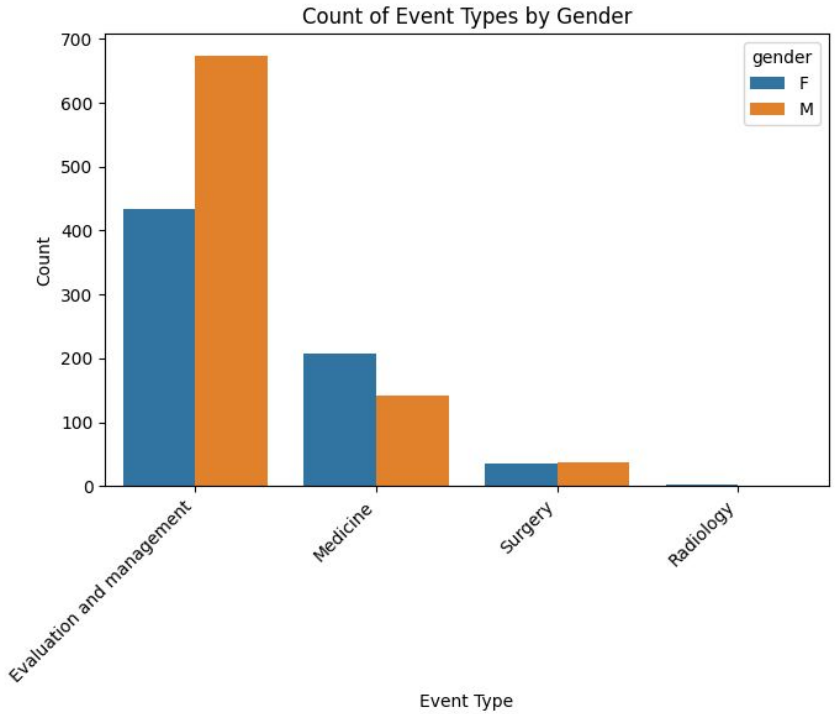
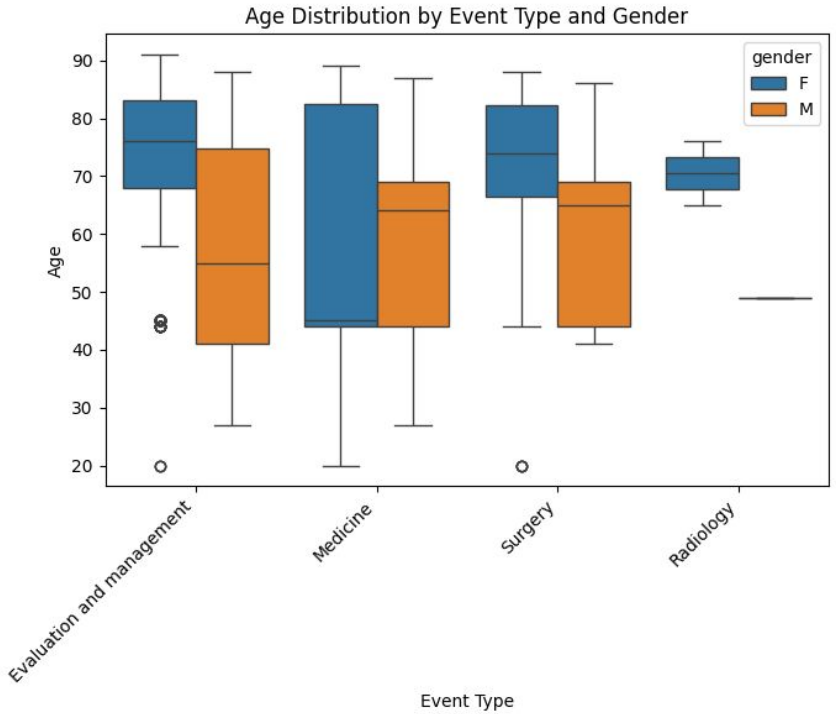
How to create this?

- Join transfer and patient table on column "subject_id"
- Use seaborn to create boxplot and count plot

```
# Bar plot - Count of Event Types by Gender
plt.figure(figsize=(14, 6))

plt.subplot(1, 2, 1)
sns.countplot(data=patient_transfer, x="eventtype", hue="gender")
plt.title("Count of Event Types by Gender")
plt.xlabel("Event Type")
plt.ylabel("Count")
plt.xticks(rotation=45, ha="right", fontsize=10)

# Box plot - Age Distribution by Event Type and Gender
plt.subplot(1, 2, 2)
sns.boxplot(data=patient_transfer, x="eventtype", y="age", hue="gender")
plt.title("Age Distribution by Event Type and Gender")
plt.xlabel("Event Type")
plt.ylabel("Age")
plt.xticks(rotation=45, ha="right", fontsize=10)

plt.tight_layout()
plt.show()
```

Visualization-5 (CPT events by patients)





Visualization-5 (Continued..)

What does it convey?

- Answer questions like Is there any relation between patient's CPT events and gender?
- Is there any relation between patient's CPT events and age along with gender?
- We can see that very few patients have used radiology related services.
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How to create this?

- Join CPTEVENTS and patient table on column "subject_id"
- Use seaborn to create boxplot and count plot