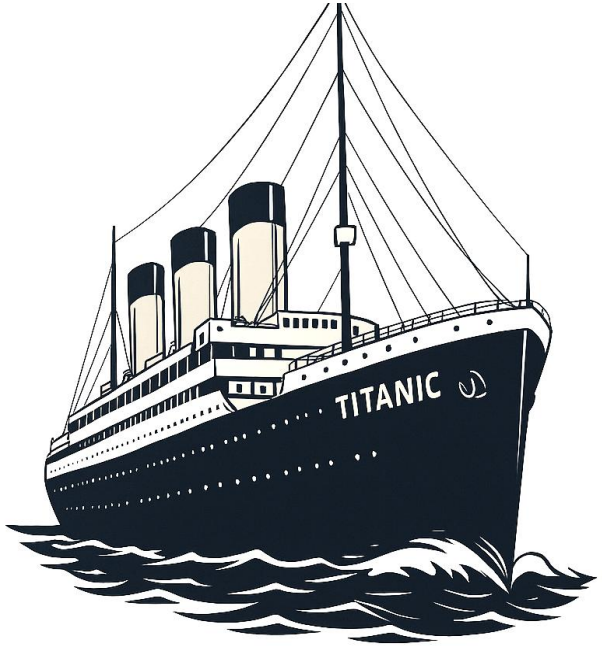
PYTHON – FINAL PROJECT

TITANIC



DATA ANALYST - TECHOF

Filipa Tiago, Hugo Varela e Joana Correia

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INTRODUCTION

Titanic Passengers Data:

- Name, Age, Gender
- Family on board
- Class, Ticket fare and number
- Local embarked
- Binary survival variable
  - (0 – if not survived; 1 – if survived)

DataFrame:

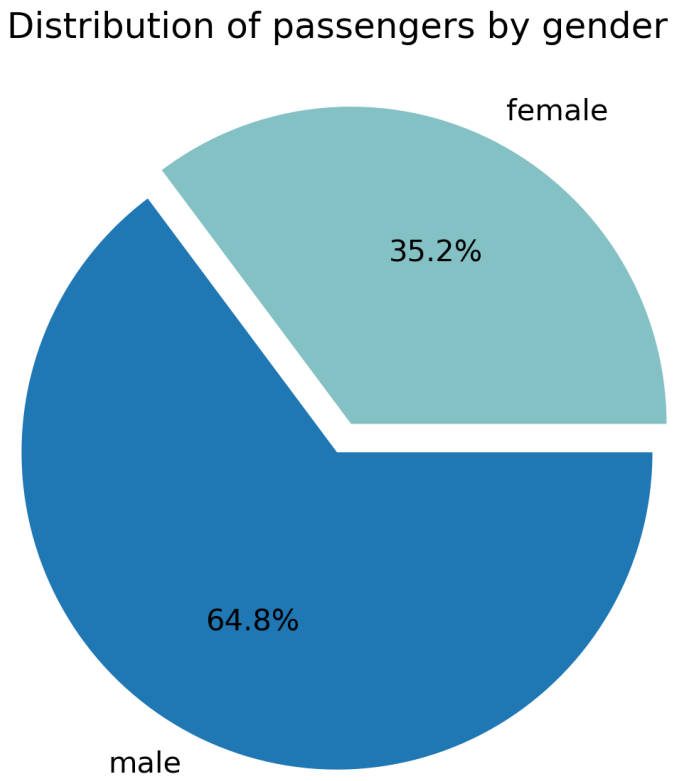
- 891 records
- 12 columns

DATA TREATMENT

1. Check for null values
2. Index: *PassengerID*
3. Delete columns: *Cabin*
   - 687 null values
4. Null values in column *Age*:
   - Replaced with median values for men (29) and women (27)
5. Add new columns:
   - Sex boolean
     - 0 – Female, 1 – Male
   - Family size
     - Sum of siblings, parents, children and spouses aboard
   - Group by family size
     - Alone, Small family and Large family
   - Group by age
     - Passengers grouped by ages
   - Survived non boolean
     - For chart analysis
6. Null values in *Embarked* column
   - Changed to the most common value 'S'

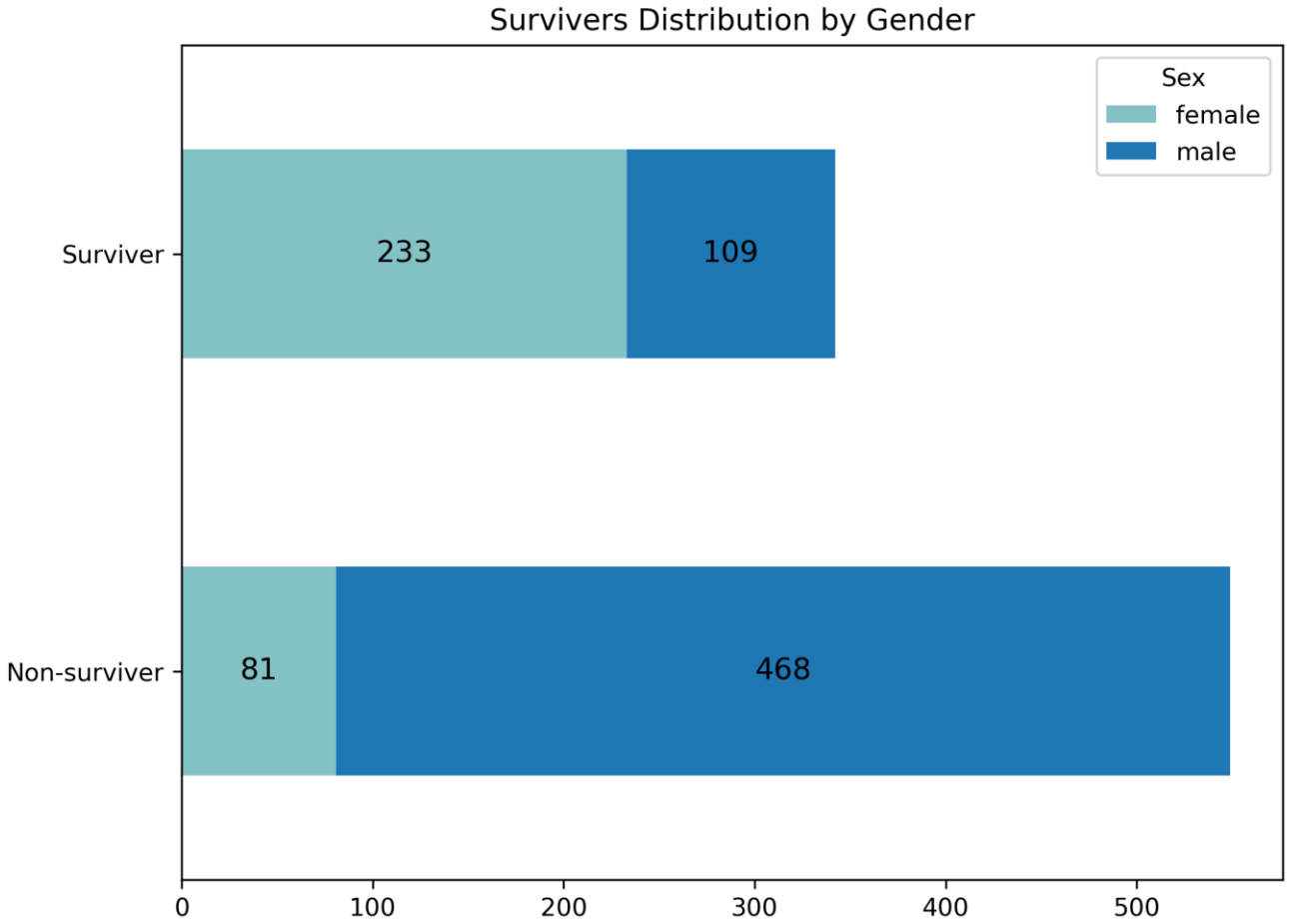
OVERALL STATISTICS

DISTRIBUTION OF PASSENGERS BY GENDER



Total Passengers: 891

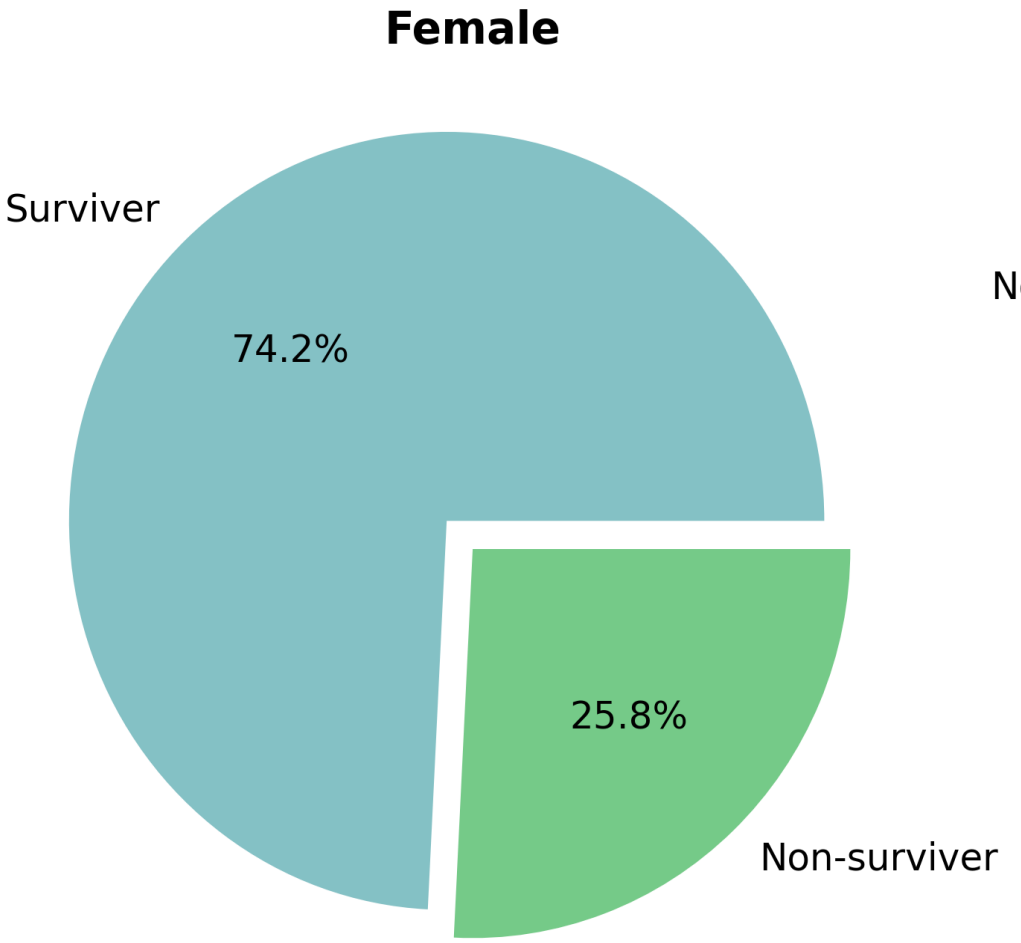
Men: 577
Women: 314

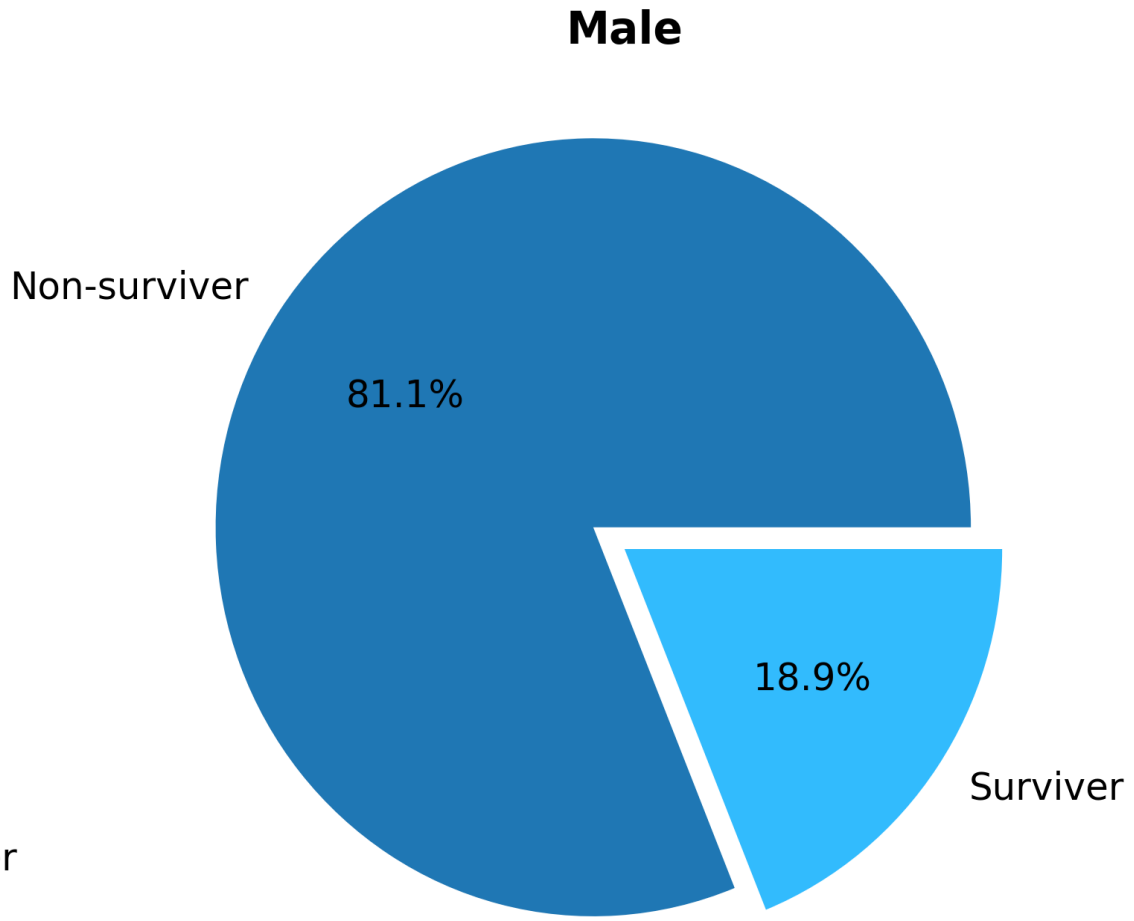


Survivers: 342

Non-survivers: 549

Survival Distribution by Gender

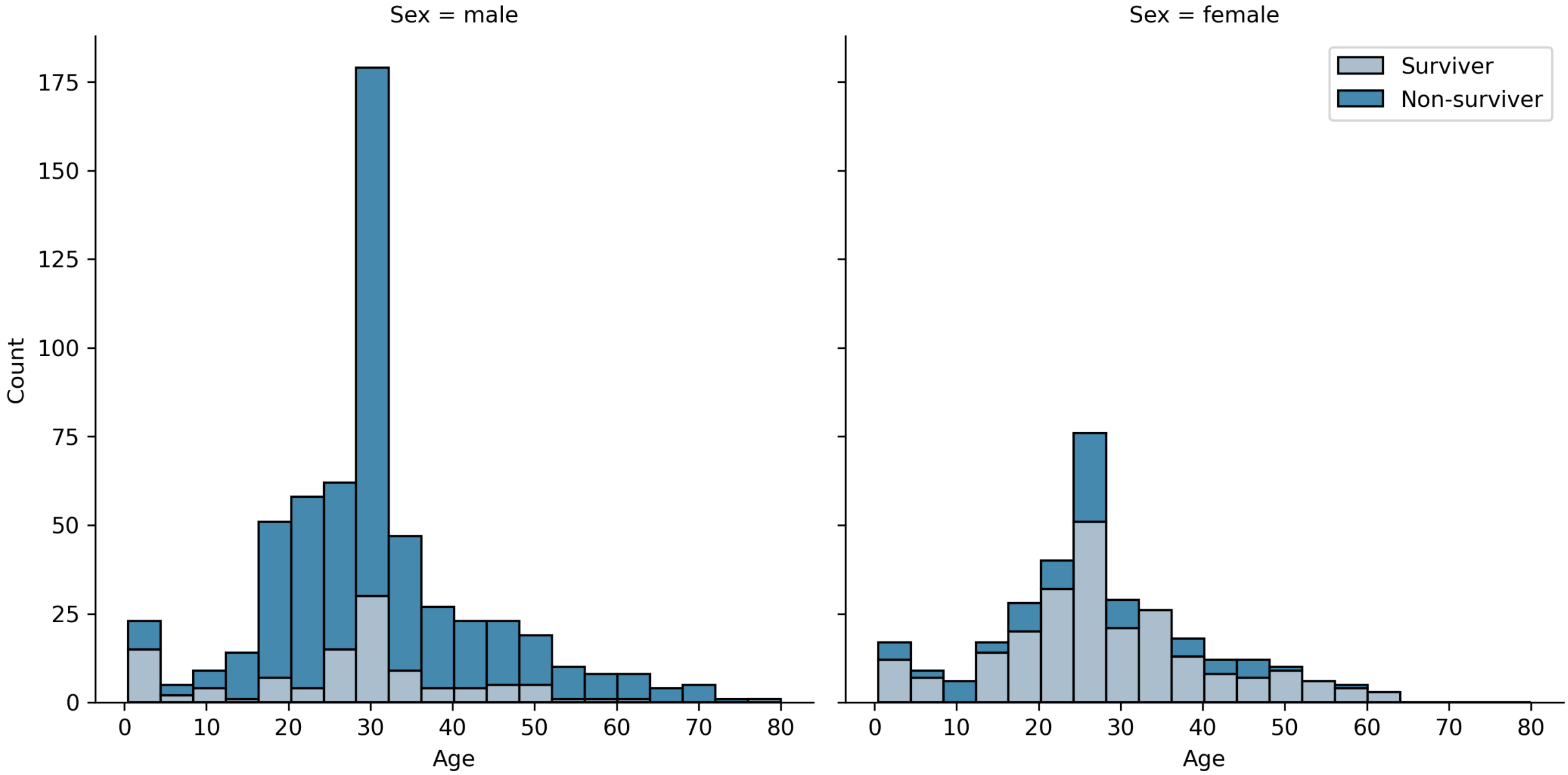




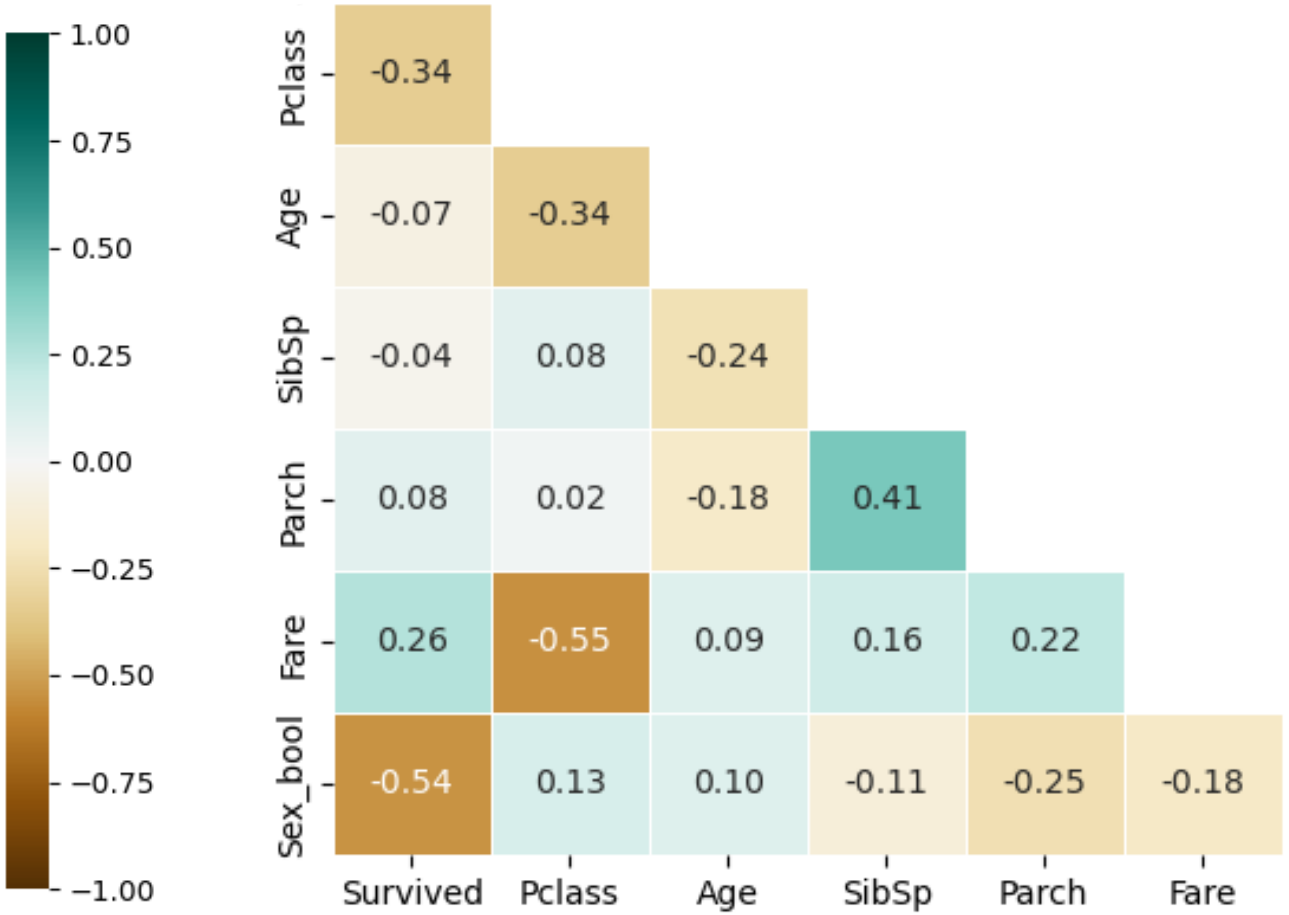
GENDER COMPARISON OF SURVIVERS AND NON-SURVIVERS

DISTRIBUTION OF SURVIVERS BY GENDER AND AGE

Average Age: 29



CORRELATION MATRIX - HEATMAP



Strongest Correlations:

1. Ticket price vs Class
2. Gender vs Survival
3. Sibling/Spouses vs Parents/Children

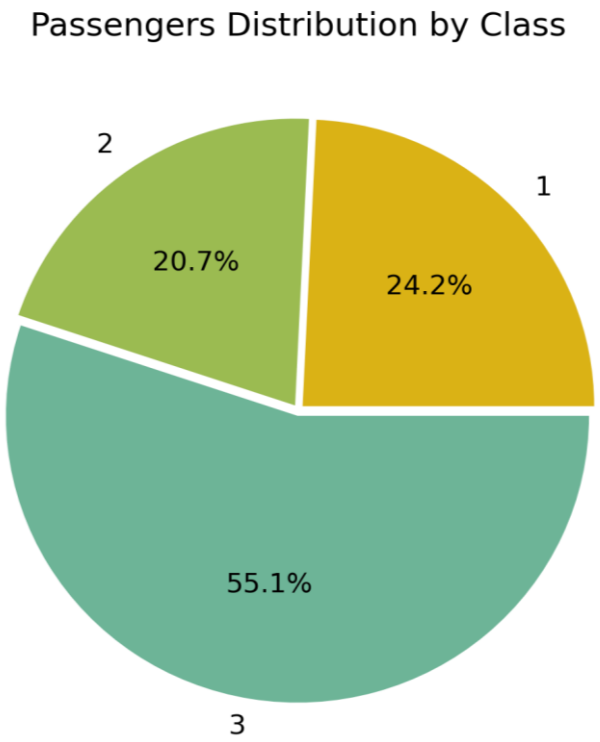
Most meaningful correlations:

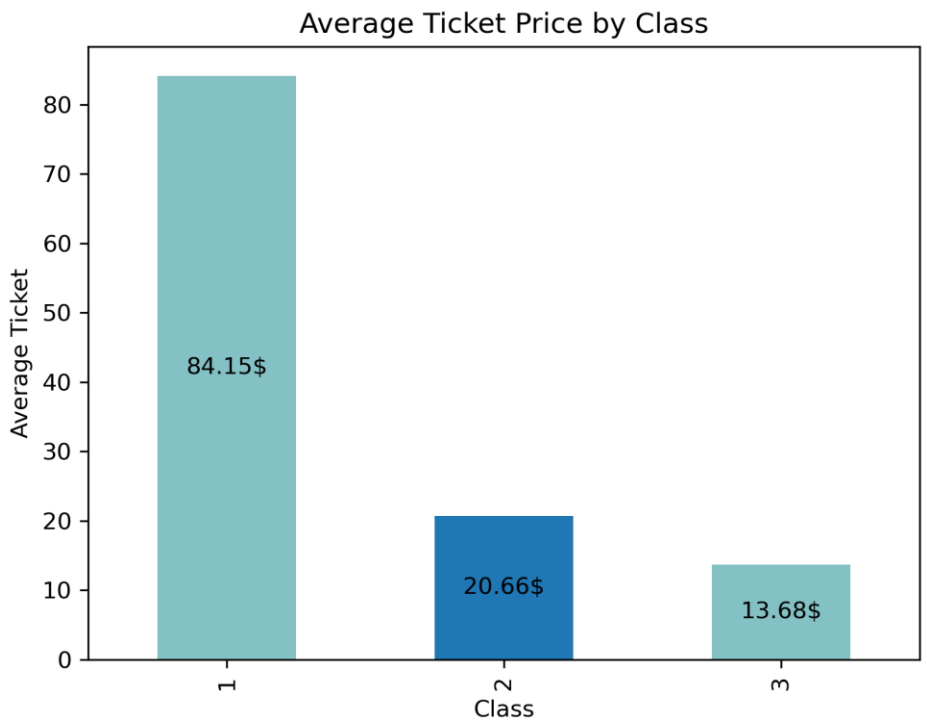
- Survival vs Gender
- Survival vs Class
- Survival vs Ticket price

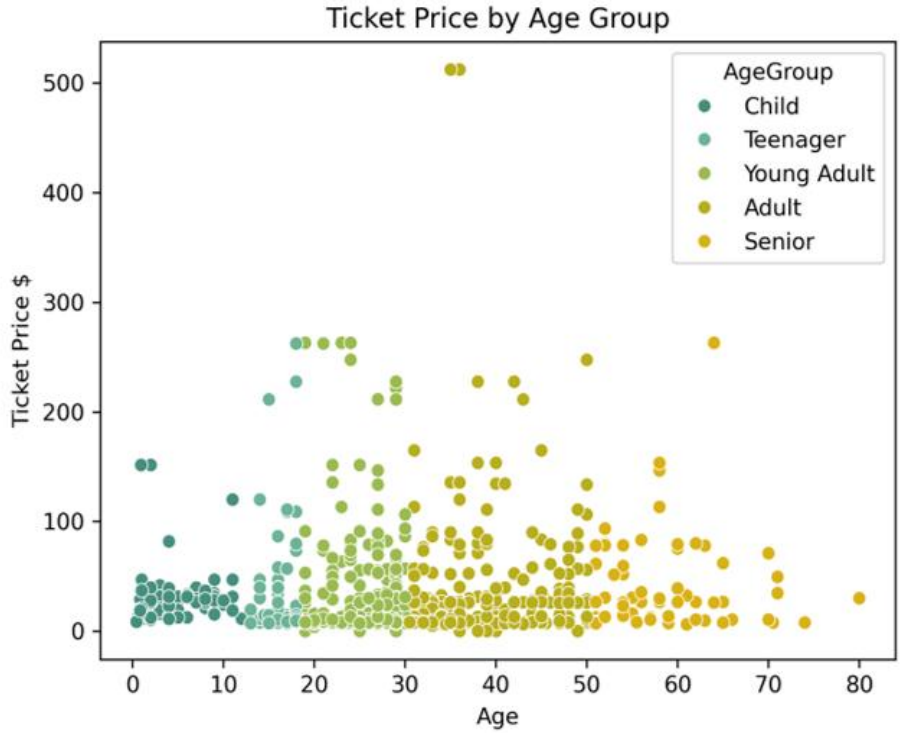
STUDY QUESTIONS

HOW DOES THE SURVIVAL RATE VARY ACROSS PASSENGERS CLASS?

WHAT IS THE AVERAGE FARE ACROSS PASSENGERS CLASS AND HOW IS IT RELATED WITH AGE ?



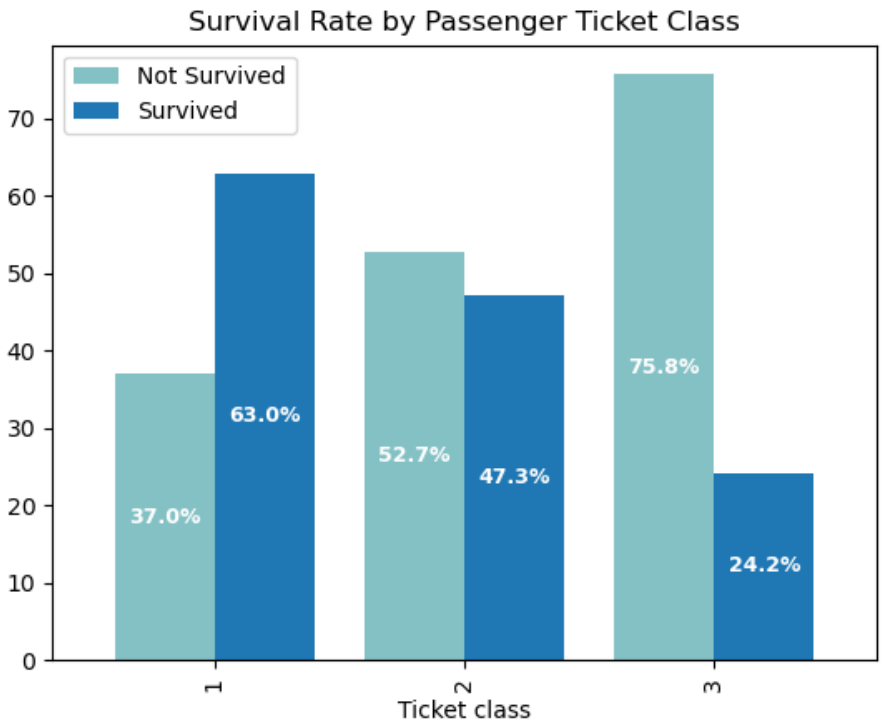


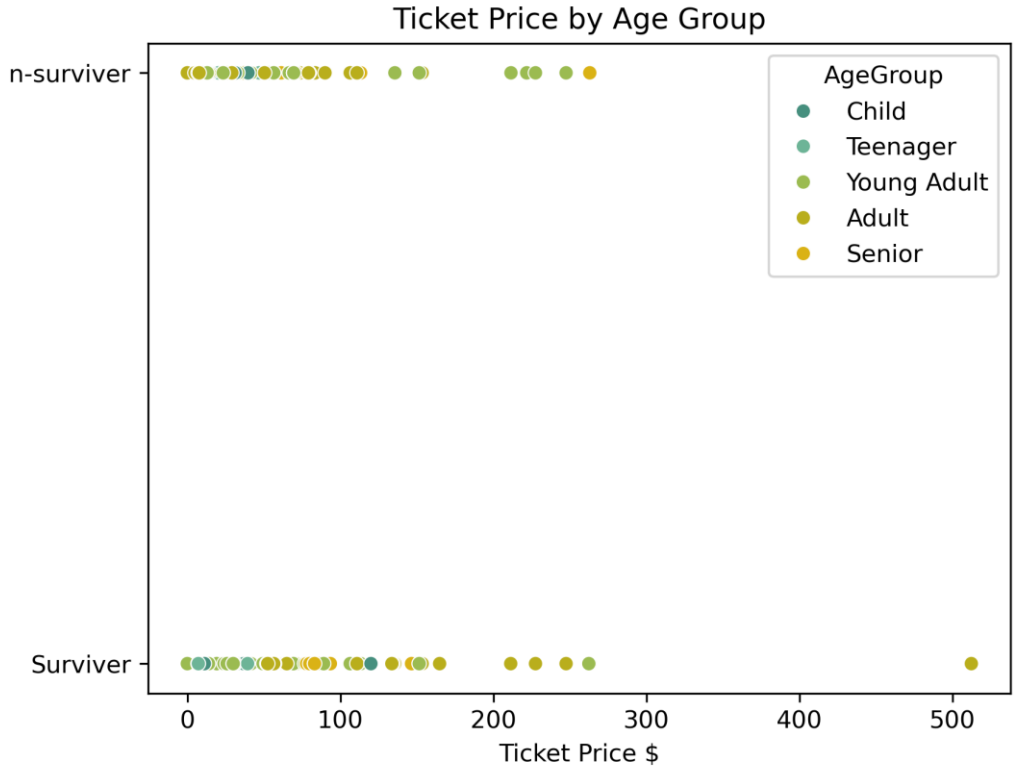


$ Average Ticket Price 32$ Most expensive Ticket: 512$

HOW DOES THE SURVIVAL RATE VARY ACROSS PASSENGERS CLASS?

IS THERE A CORRELATION BETWEEN TICKET PRICE AND SURVIVAL RATE?



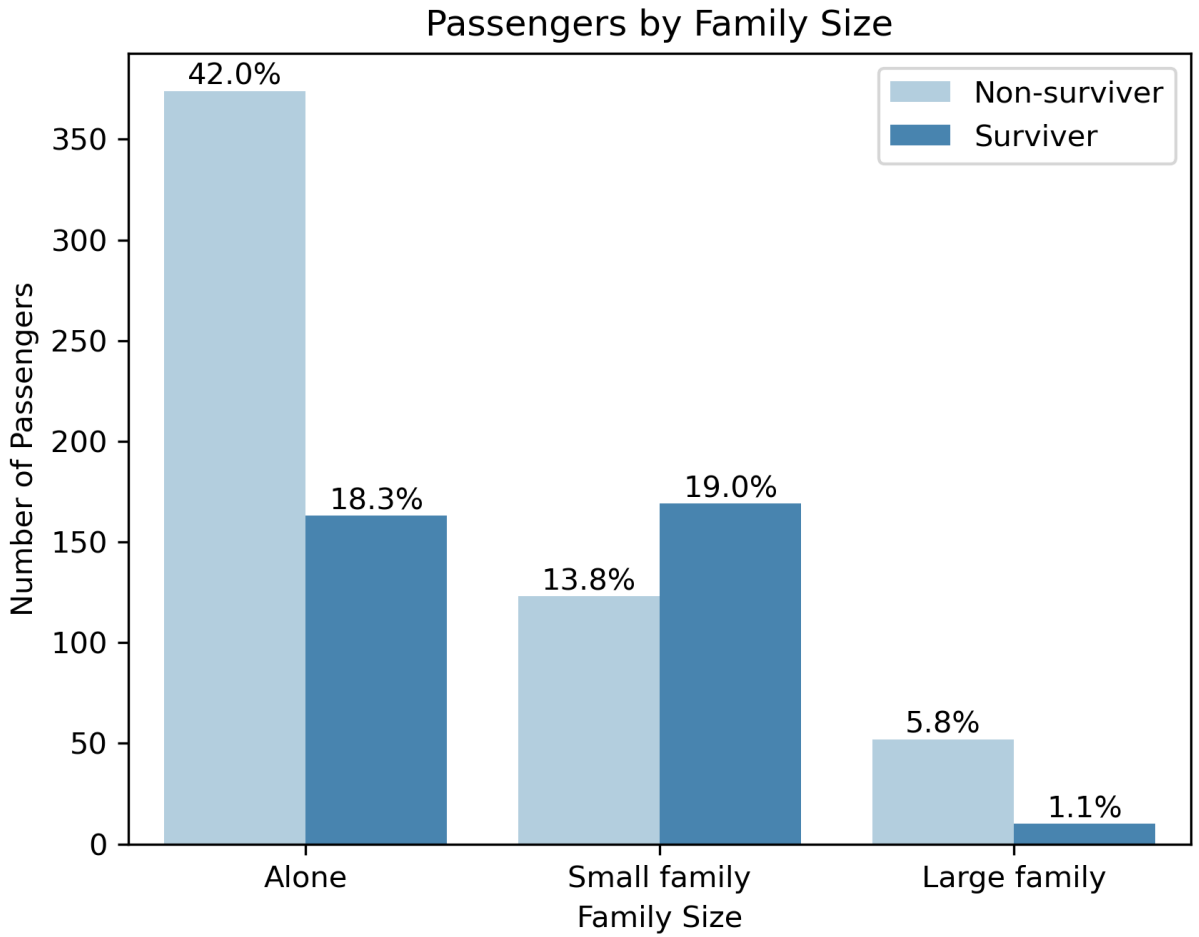


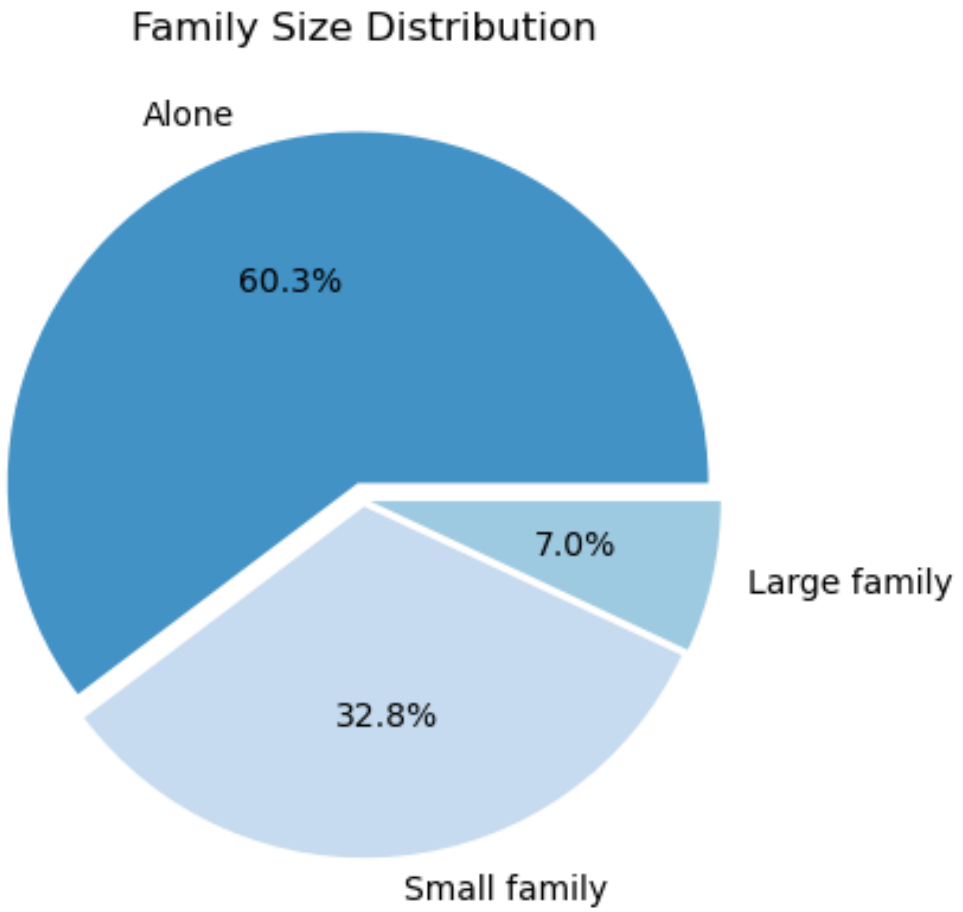
Death rate by class:

Class 1 – 37% Deaths; *Class 2* – 53% Deaths; *Class 3* – 76% Deaths

IS THERE A RELATION BETWEEN SURVIVAL AND FAMILY NUMBER?

Family Size:		
	Alone	1
	Small family	2 - 4
	Large family	>5





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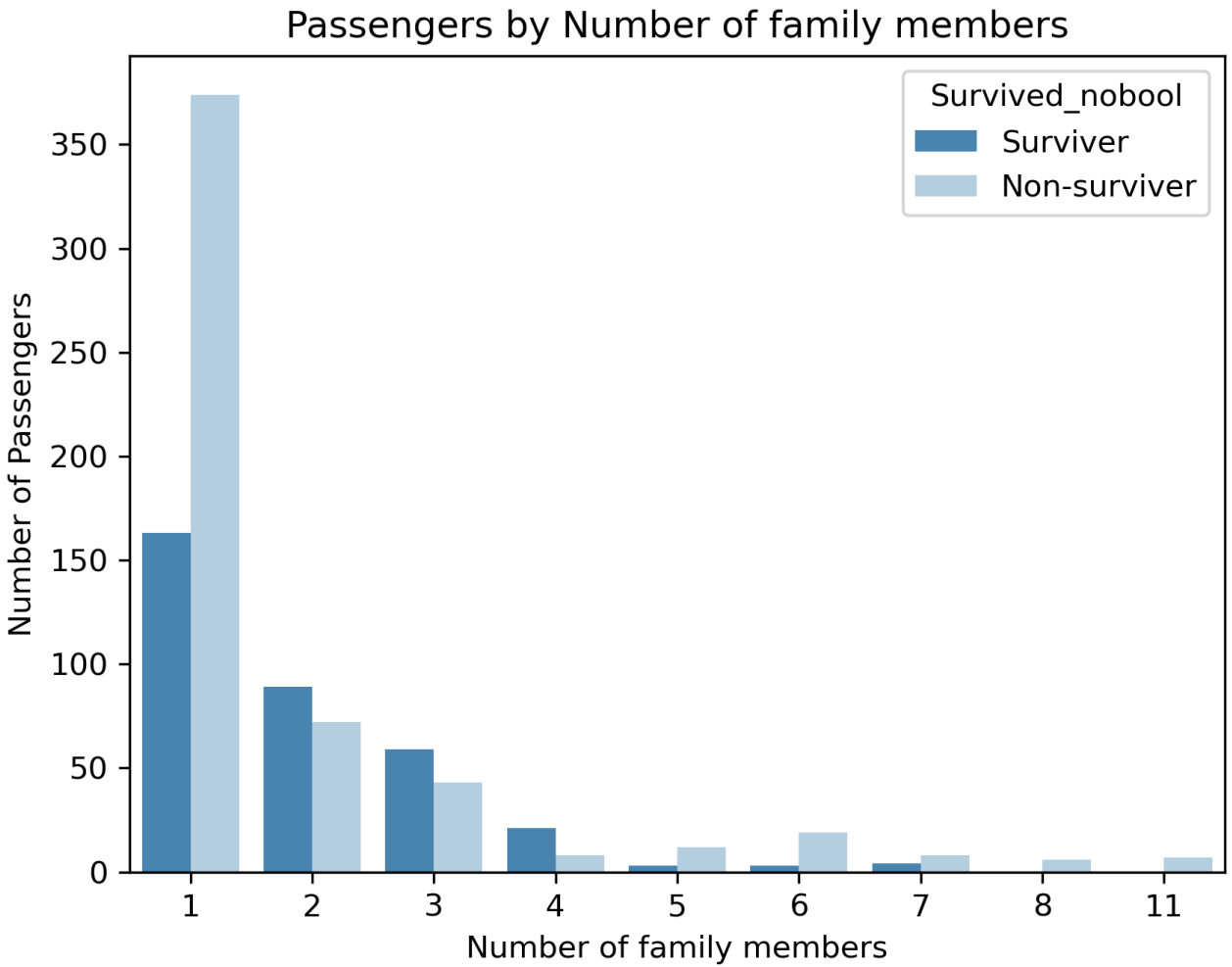
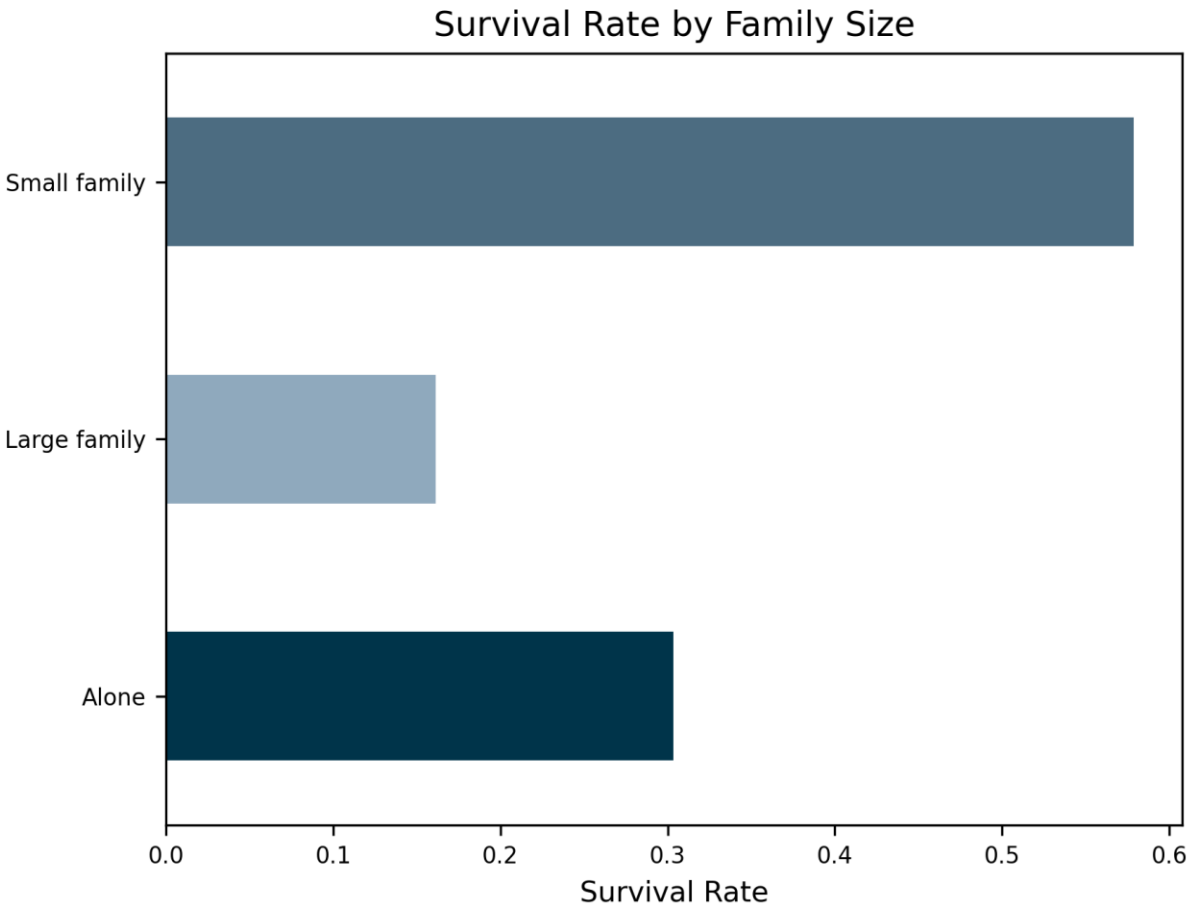
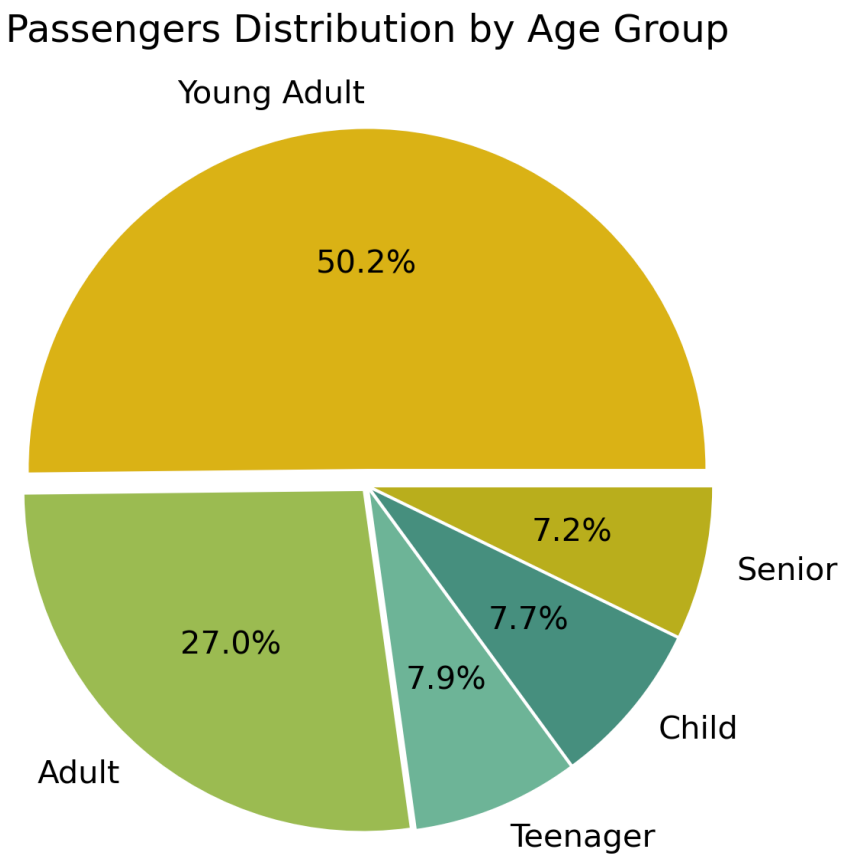
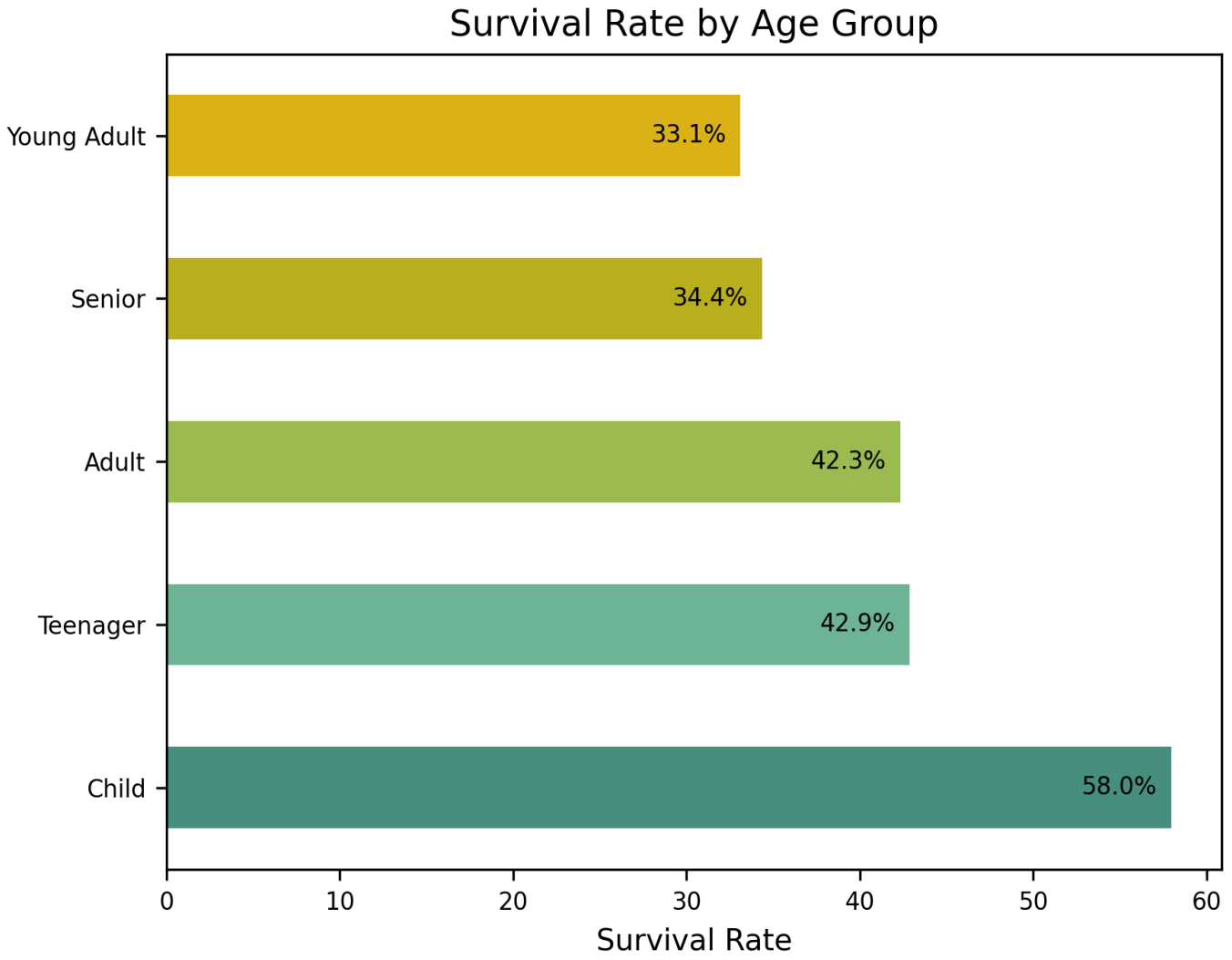


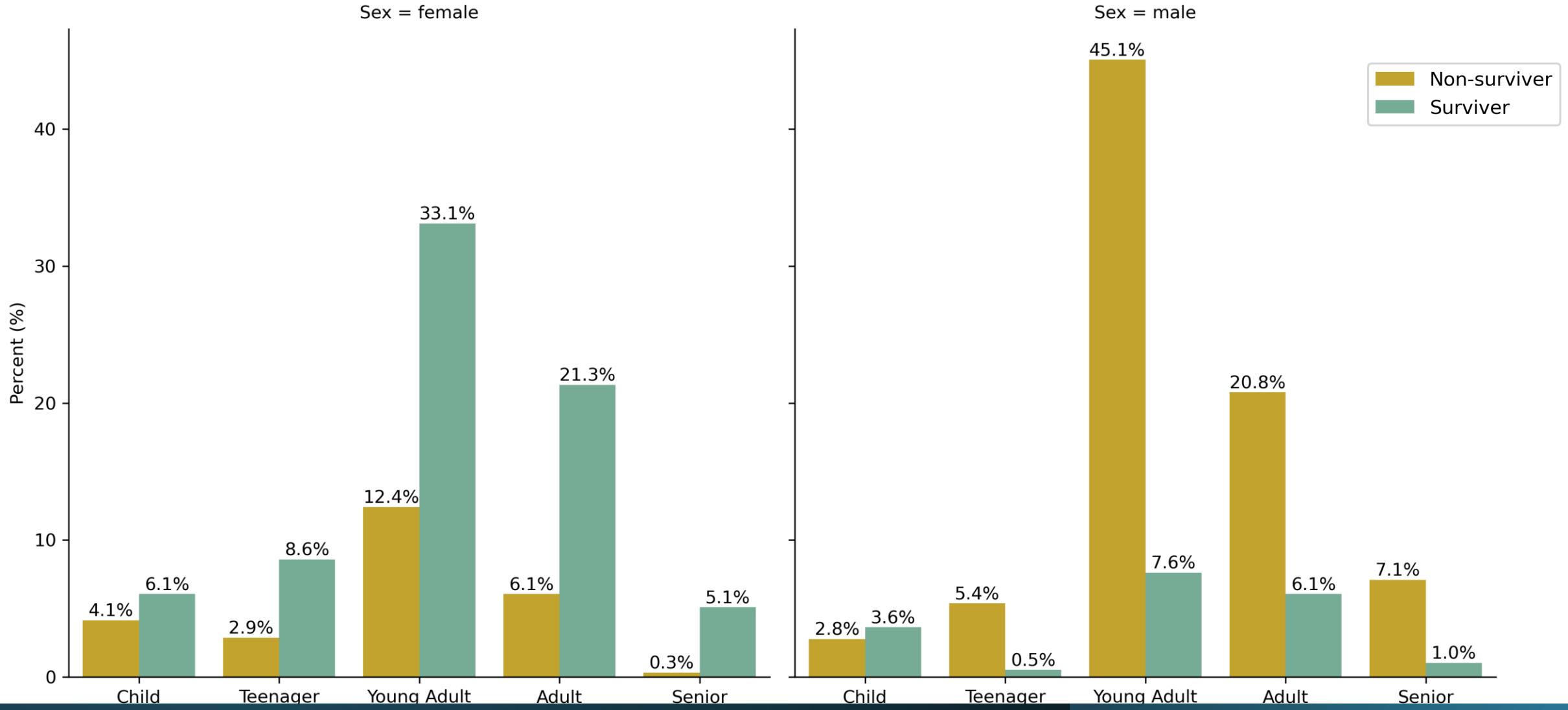


WHAT IS THE SURVIVAL RATE BY AGE GROUP?

Age Groups:	
Child	< 12
Teenager	13 - 18
Young Adult	19 - 30
Adult	31 - 50
Senior	> 51







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CONCLUSIONS

- Of a total 891 passengers, 62% died
- Survival rate:
  - 1/5 men survived
  - 3/4 women survived
- "*Women and children first*" principle:
  - 58% children saved
  - 56% adult women saved
- Socioeconomics status had impact:
  - High mortality rate in Class 3 (76%)
- Family structure:
  - Smaller families had higher survival rate

QUESTIONS