STRUCTURED Analysis Report for titanic

dataset_overview

total_rows

891

total_columns

15

column_types

survived

int64

pclass

int64

sex

object

age

float64

sibsp

int64

parch

int64

fare

float64

embarked

object

class

category

who

object

adult_male

bool

deck

category

embark_town

object

alive

object

alone

bool

null_value_analysis

age

total_null

177

null_percentage

19.865319865319865

row_indices

[5, 17, 19, 26, 28, 29, 31, 32, 36, 42, 45, 46, 47, 48, 55, 64, 65, 76, 77, 82, 87, 95, 101, 107, 109, 121, 126, 128, 140, 154, 158, 159, 166, 168, 176, 180, 181, 185, 186, 196, 198, 201, 214, 223, 229, 235, 240, 241, 250, 256]

... (truncated)

embarked

total_null

2

null_percentage

0.22446689113355783

row_indices

[61, 829]

deck

total_null

688

null_percentage

77.21661054994388

row_indices

[0, 2, 4, 5, 7, 8, 9, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 25, 26, 28, 29, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 53, 56, 57, 58, 59, 60, 63]

... (truncated)

embark_town

total_null

2

null_percentage

0.22446689113355783

row_indices

[61, 829]

duplicate_rows_analysis

total_duplicates

160

duplicate_percentage

17.957351290684624

duplicate_row_indices

[4, 26, 28, 29, 32, 37, 42, 45, 46, 47, 53, 64, 65, 74, 76, 77, 87, 91, 95, 101, 105, 112, 115, 121, 126, 133, 134, 144, 157, 159, 163, 173, 178, 180, 186, 196, 198, 200, 201, 212, 213, 221, 223, 229, 241, 250, 260, 274, 277, 287]

... (truncated)

duplicate_details

[{'survived': 0, 'pclass': 3, 'sex': 'male', 'age': 35.0, 'sibsp': 0, 'parch': 0, 'fare': 8.05, 'embarked': 'S', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Southampton', 'alive': 'no', 'alone': True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 7.225, 'embarked': 'C', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Cherbourg', 'alive': 'no', 'alone': True}, {'survived': 1, 'pclass': 3, 'sex': 'female', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 7.8792, 'embarked': 'Q', 'class': 'Third', 'who': 'woman', 'adult_male': False, 'deck': nan, 'embark_town': 'Queenstown', 'alive': 'yes', 'alone':

True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 7.8958, 'embarked': 'S', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Southampton', 'alive': 'no', 'alone': True}, {'survived': 1, 'pclass': 3, 'sex': 'female', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 7.75, 'embarked': 'Q', 'class': 'Third', 'who': 'woman', 'adult_male': False, 'deck': nan, 'embark_town': 'Queenstown', 'alive': 'yes', 'alone': True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': 21.0, 'sibsp': 0, 'parch': 0, 'fare': 8.05, 'embarked': 'S', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Southampton', 'alive': 'no', 'alone': True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 7.8958, 'embarked': 'C', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Cherbourg', 'alive': 'no', 'alone': True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 8.05, 'embarked': 'S', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Southampton', 'alive': 'no', 'alone': True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': nan, 'sibsp': 1, 'parch': 0, 'fare': 15.5, 'embarked': 'Q', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Queenstown', 'alive': 'no', 'alone': False}, {'survived': 1, 'pclass': 3, 'sex': 'female', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 7.75, 'embarked': 'Q', 'class': 'Third', 'who': 'woman', 'adult_male': False, 'deck': nan, 'embark_town': 'Queenstown', 'alive': 'yes', 'alone': True}, {'survived': 1, 'pclass': 2, 'sex': 'female', 'age': 29.0, 'sibsp': 1, 'parch': 0, 'fare': 26.0, 'embarked': 'S', 'class': 'Second', 'who': 'woman', 'adult_male': False, 'deck': nan, 'embark_town': 'Southampton', 'alive': 'yes', 'alone': False}, {'survived': 0, 'pclass': 1, 'sex': 'male', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 27.7208, 'embarked': 'C', 'class': 'First', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Cherbourg', 'alive': 'no', 'alone': True}, {'survived': 1, 'pclass': 3, 'sex': 'male', 'age': nan, 'sibsp': 1, 'parch': 1, 'fare': 15.2458, 'embarked': 'C', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Cherbourg', 'alive': 'yes', 'alone': False}, {'survived': 1, 'pclass': 3, 'sex': 'male', 'age': 32.0, 'sibsp': 0, 'parch': 0, 'fare': 56.4958, 'embarked': 'S', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Southampton', 'alive': 'yes', 'alone': True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 7.8958, 'embarked': 'S', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Southampton', 'alive': 'no', 'alone': True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 8.05, 'embarked': 'S', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Southampton', 'alive': 'no', 'alone': True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 8.05, 'embarked': 'S', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Southampton', 'alive': 'no', 'alone': True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': 20.0, 'sibsp': 0, 'parch': 0, 'fare': 7.8542, 'embarked': 'S', 'class': 'Third', 'who': 'man', 'adult_male': True, 'deck': nan, 'embark_town': 'Southampton', 'alive': 'no', 'alone': True}, {'survived': 0, 'pclass': 3, 'sex': 'male', 'age': nan, 'sibsp': 0, 'parch': 0, 'fare': 8.05, 'embarked': 'S', 'class': 'Third', 'who': 'man',

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numeric_stats

survived

count

891.0

mean

0.3838383838383838

std

0.4865924542648575

min

0.0

25%

0.0

50%

0.0

75%

1.0

max

1.0

pclass

count

891.0

mean

2.308641975308642

std

0.836071240977049

min

1.0

25%

2.0

50%

3.0

75%

3.0

max

3.0

age

count

714.0

mean

29.69911764705882

std

14.526497332334042

min

0.42

25%

20.125

50%

28.0

75%

38.0

max

80.0

sibsp

count

891.0

mean

0.5230078563411896

std

1.1027434322934317

min

0.0

25%

0.0

50%

0.0

75%

1.0

max

8.0

parch

count

891.0

mean

0.38159371492704824

std

0.8060572211299483

min

0.0

25%

0.0

50%

0.0

75%

0.0

max

6.0

fare

count

891.0

mean

32.204207968574636

std

49.6934285971809

min

0.0

25%

7.9104

50%

14.4542

75%

31.0

max

512.3292

statistical_tests

survived

normality_p_value

0.0

is_normally_distributed

False

pclass

normality_p_value

0.0

is_normally_distributed

False

age

normality_p_value

0.00011709599657350757

is_normally_distributed

False

sibsp

normality_p_value

1.0712617667710052e-157

is_normally_distributed

False

parch

normality_p_value

1.2061095353353196e-118

is_normally_distributed

False

fare

normality_p_value

3.727091062842147e-197

is_normally_distributed

False

outlier_analysis

age

outliers

[66.0, 65.0, 71.0, 70.5, 65.0, 65.0, 71.0, 80.0, 70.0, 70.0, 74.0]

outlier_row_indices

[33, 54, 96, 116, 280, 456, 493, 630, 672, 745, 851]

outlier_details

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outlier_percentage

1.2345679012345678

lower_bound

-6.6875

upper_bound

64.8125

sibsp

outliers

[3, 4, 3, 3, 4, 5, 3, 4, 5, 3, 3, 4, 8, 4, 4, 3, 8, 4, 8, 3, 4, 4, 4, 8, 3, 3, 5, 3, 5, 3, 4, 4, 3, 3, 5, 4, 3, 4, 8, 4, 3, 4, 8, 4, 8]

outlier_row_indices

[7, 16, 24, 27, 50, 59, 63, 68, 71, 85, 88, 119, 159, 164, 171, 176, 180, 182, 201, 229, 233, 261, 266, 278, 324, 341, 374, 386, 409, 480, 485, 541, 542, 634, 642, 683, 686, 726, 787, 792, 813, 819, 824, 846, 850, 863]

outlier_details

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outlier_percentage

5.16273849607183

lower_bound

-1.5

upper_bound

2.5

parch

outliers

[1, 2, 1, 5, 1, 1, 5, 2, 2, 1, 1, 2, 2, 2, 1, 2, 2, 2, 3, 2, 2, 1, 1, 1, 2, 1, 1, 2, 2, 1, 2, 2, 2, 1, 2, 1, 1, 2, 1, 4, 1, 1, 1, 1, 2, 2, 1, 2, 1]

... (truncated)

outlier_row_indices

[7, 8, 10, 13, 16, 24, 25, 27, 43, 50, 54, 58, 59, 63, 65, 68, 71, 78, 86, 88, 93, 97, 98, 102, 118, 119, 124, 128, 136, 140, 145, 147, 148, 153, 155, 159, 160, 164, 165, 166, 167, 171, 172, 175, 176, 180, 182, 183, 184, 188]

... (truncated)

outlier_details

[{'row_index': 7, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 8, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 10, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 13, 'value': 5, 'type': 'upper_outlier'}, {'row_index': 16, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 24, 'value': 1, 'type': 'upper_outlier'},

{'row_index': 25, 'value': 5, 'type': 'upper_outlier'}, {'row_index': 27, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 43, 'value': 2, 'type': 'upper_outlier'},

{'row_index': 50, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 54, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 58, 'value': 2, 'type': 'upper_outlier'},

{'row_index': 59, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 63, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 65, 'value': 1, 'type': 'upper_outlier'},

{'row_index': 68, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 71, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 78, 'value': 2, 'type': 'upper_outlier'},

{'row_index': 86, 'value': 3, 'type': 'upper_outlier'}, {'row_index': 88, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 93, 'value': 2, 'type': 'upper_outlier'},

{'row_index': 97, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 98, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 102, 'value': 1, 'type': 'upper_outlier'},

{'row_index': 118, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 119, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 124, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 128, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 136, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 140, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 145, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 147, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 148, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 153, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 155, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 159, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 160, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 164, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 165, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 166, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 167, 'value': 4, 'type': 'upper_outlier'}, {'row_index': 171, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 172, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 175, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 176, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 180, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 182, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 183, 'value': 1, 'type': 'upper_outlier'}, {'row_index': 184, 'value': 2, 'type': 'upper_outlier'}, {'row_index': 188, 'value': 1, 'type': 'upper_outlier'}]

... (truncated)

outlier_percentage

23.905723905723907

lower_bound

0.0

upper_bound

0.0

fare

outliers

[71.2833, 263.0, 146.5208, 82.1708, 76.7292, 80.0, 83.475, 73.5, 263.0, 77.2875, 247.5208, 73.5, 77.2875, 79.2, 66.6, 69.55, 69.55, 146.5208, 69.55, 113.275, 76.2917, 90.0, 83.475, 90.0, 79.2, 86.5, 512.3292, 79.65, 153.4625, 135.6333, 77.9583, 78.85, 91.0792, 151.55, 247.5208, 151.55, 110.8833, 108.9, 83.1583, 262.375, 164.8667, 134.5, 69.55, 135.6333, 153.4625, 133.65, 66.6, 134.5, 263.0, 75.25]

... (truncated)

outlier_row_indices

[1, 27, 31, 34, 52, 61, 62, 72, 88, 102, 118, 120, 124, 139, 151, 159, 180, 195, 201, 215, 218, 224, 230, 245, 256, 257, 258, 262, 268, 269, 275, 290, 291, 297, 299, 305, 306, 307, 310, 311, 318, 319, 324, 325, 332, 334, 336, 337, 341, 366]

... (truncated)

outlier_details

[{'row_index': 1, 'value': 71.2833, 'type': 'upper_outlier'}, {'row_index': 27, 'value': 263.0, 'type': 'upper_outlier'}, {'row_index': 31, 'value': 146.5208, 'type': 'upper_outlier'}, {'row_index': 34, 'value': 82.1708, 'type': 'upper_outlier'}, {'row_index': 52, 'value': 76.7292, 'type': 'upper_outlier'}, {'row_index': 61, 'value': 80.0, 'type': 'upper_outlier'}, {'row_index': 62, 'value': 83.475, 'type': 'upper_outlier'}, {'row_index': 72, 'value': 73.5, 'type': 'upper_outlier'}, {'row_index': 88, 'value': 263.0, 'type': 'upper_outlier'}, {'row_index': 102, 'value': 77.2875, 'type': 'upper_outlier'}, {'row_index': 118, 'value': 247.5208, 'type': 'upper_outlier'}, {'row_index': 120, 'value': 73.5, 'type': 'upper_outlier'}, {'row_index': 124, 'value': 77.2875, 'type': 'upper_outlier'}, {'row_index': 139, 'value': 79.2, 'type': 'upper_outlier'}, {'row_index': 151, 'value': 66.6, 'type': 'upper_outlier'}, {'row_index': 159, 'value': 69.55, 'type': 'upper_outlier'}, {'row_index': 180, 'value': 69.55, 'type': 'upper_outlier'}, {'row_index': 195, 'value': 146.5208, 'type': 'upper_outlier'}, {'row_index': 201, 'value': 69.55, 'type': 'upper_outlier'}, {'row_index': 215, 'value': 113.275, 'type': 'upper_outlier'}, {'row_index': 218, 'value': 76.2917, 'type': 'upper_outlier'}, {'row_index': 224, 'value': 90.0, 'type': 'upper_outlier'}, {'row_index': 230, 'value': 83.475, 'type': 'upper_outlier'}, {'row_index': 245, 'value': 90.0, 'type': 'upper_outlier'}, {'row_index': 256, 'value': 79.2, 'type': 'upper_outlier'}, {'row_index': 257, 'value': 86.5, 'type': 'upper_outlier'}, {'row_index': 258, 'value': 512.3292, 'type': 'upper_outlier'}, {'row_index': 262, 'value': 79.65, 'type': 'upper_outlier'}, {'row_index': 268, 'value': 153.4625, 'type': 'upper_outlier'}, {'row_index': 269, 'value': 135.6333, 'type': 'upper_outlier'}, {'row_index': 275, 'value': 77.9583, 'type': 'upper_outlier'}, {'row_index': 290, 'value': 78.85, 'type': 'upper_outlier'}, {'row_index': 291, 'value': 91.0792, 'type': 'upper_outlier'}, {'row_index': 297, 'value': 151.55, 'type': 'upper_outlier'}, {'row_index': 299, 'value': 247.5208, 'type': 'upper_outlier'}, {'row_index': 305, 'value': 151.55, 'type': 'upper_outlier'}, {'row_index': 306, 'value': 110.8833, 'type': 'upper_outlier'}, {'row_index': 307, 'value': 108.9, 'type': 'upper_outlier'}, {'row_index': 310, 'value': 83.1583, 'type': 'upper_outlier'}, {'row_index': 311,

'value': 262.375, 'type': 'upper_outlier'}, {'row_index': 318, 'value': 164.8667, 'type': 'upper_outlier'}, {'row_index': 319, 'value': 134.5, 'type': 'upper_outlier'}, {'row_index': 324, 'value': 69.55, 'type': 'upper_outlier'}, {'row_index': 325, 'value': 135.6333, 'type': 'upper_outlier'}, {'row_index': 332, 'value': 153.4625, 'type': 'upper_outlier'}, {'row_index': 334, 'value': 133.65, 'type': 'upper_outlier'}, {'row_index': 336, 'value': 66.6, 'type': 'upper_outlier'}, {'row_index': 337, 'value': 134.5, 'type': 'upper_outlier'}, {'row_index': 341, 'value': 263.0, 'type': 'upper_outlier'}, {'row_index': 366, 'value': 75.25, 'type': 'upper_outlier'}]

... (truncated)

outlier_percentage

13.019079685746352

lower_bound

-26.724

upper_bound

65.6344

categorical_analysis

sex

male

0.6475869809203143

female

0.35241301907968575

embarked

S

0.7244094488188977

C

0.18889763779527559

Q

0.08661417322834646

class

Third

0.5510662177328844

First

0.24242424242424243

Second

0.20650953984287318

who

man

0.6026936026936027

woman

0.3041526374859708

child

0.0931537598204265

deck

C

0.29064039408866993

B

0.2315270935960591

D

0.1625615763546798

E

0.15763546798029557

A

0.07389162561576355

F

0.06403940886699508

G

0.019704433497536946

embark_town

Southampton

0.7244094488188977

Cherbourg

0.1889763779527559

Queenstown

0.08661417322834646

alive

no

0.6161616161616161

yes

0.3838383838383838

correlation_analysis

 correlation_matrix

  survived

   survived

1.0

   pclass

-0.33848103596101514

   age

-0.07722109457217756

   sibsp

-0.035322498885735576

   parch

0.08162940708348335

   fare

0.2573065223849626

  pclass

   survived

-0.33848103596101514

pclass

1.0

age

-0.36922601531551735

sibsp

0.08308136284568686

parch

0.018442671310748508

fare

-0.5494996199439076

age

survived

-0.07722109457217756

pclass

-0.36922601531551735

age

1.0

sibsp

-0.30824675892365666

parch

-0.1891192626320352

fare

0.09606669176903912

sibsp

survived

-0.035322498885735576

pclass

0.08308136284568686

age

-0.30824675892365666

sibsp

1.0

parch

0.41483769862015624

fare

0.159651043242161

parch

survived

0.08162940708348335

pclass

0.018442671310748508

age

-0.1891192626320352

sibsp

0.41483769862015624

parch

1.0

fare

0.21622494477076448

fare

survived

0.2573065223849626

pclass

-0.5494996199439076

age

0.09606669176903912

sibsp

0.159651043242161

parch

0.21622494477076448

fare

1.0

high_correlations

[]