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```
[1] import numpy as np
[x] import pandas as pd
# Load dataset
titanic = pd.read_csv('/content/drive/MyDrive/Concept of AI technology/Titanic-Dataset.csv')
# Check DataFrame info
print(titanic.info())
# Problem 1: Sorting
# 1. Fare column
fare = titanic[['Fare']]
print(fare.head())
# 2. Pclass and Age columns
class_age = titanic[['Pclass', 'Age']]
print(class_age.head())
# 3. Survived and Sex columns
survived_gender = titanic[['Survived', 'Sex']]
print(survived_gender.head())
# Problem 2: Subsetting
# Subsetting Rows
fare_gt_100 = titanic[titanic['Fare'] > 100]
print(fare_gt_100)
first_class = titanic[titanic['Pclass'] == 1]
print(first_class)
female_under_18 = titanic[(titanic['Age'] < 18) & (titanic['Sex'] == 'female')]
print(female_under_18)
# Subsetting Rows by Categorical variables
embarked_c_or_s = titanic[titanic['Embarked'].isin(['C', 'S'])]
print(embarked_c_or_s)
first_second_class = titanic[titanic['Pclass'].isin([1, 2])]
print(first_second_class)
```

<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 891 entries, 0 to 890  
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```
[2] <class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 12 columns):
 #   Column          Non-Null Count  Dtype  
--- 
 0   PassengerId    891 non-null    int64  
 1   Survived       891 non-null    int64  
 2   Pclass          891 non-null    int64  
 3   Name            891 non-null    object 
 4   Sex             891 non-null    object 
 5   Age             714 non-null    float64
 6   SibSp          891 non-null    int64  
 7   Parch          891 non-null    int64  
 8   Ticket          891 non-null    object 
 9   Fare            891 non-null    float64
 10  Cabin           264 non-null    object 
 11  Embarked        889 non-null    object 
dtypes: float64(2), int64(5), object(5)
memory usage: 83.7+ KB
None
      Fare
0    7.2500
1    71.2833
2    7.9250
3    53.1000
4    8.0500
   Pclass  Age
0     3  22.0
1     1  38.0
2     3  26.0
3     1  35.0
4     3  35.0
      Survived  Sex
0      0  male
1      1  female
2      1  female
3      1  female
4      0  male
   PassengerId  Survived  Pclass \
27          28      0      1
31          32      1      1
88          89      1      1
118         119      0      1
195         196      1      1
215         216      1      1
253         259      1      1
268         269      1      1
269         270      1      1
297         298      0      1
299         300      1      1
```

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18 ✓ 0.0000 Pclass Age

	Pclass	Age
0	3	22.0
1	1	38.0
2	3	26.0
3	1	35.0
4	3	35.0

{x} Survived Sex

	Survived	Sex
0	0	male
1	1	female
2	1	female
3	1	female
4	0	male

PassengerId Survived Pclass \

PassengerId	Survived	Pclass	\
27	28	0	1
31	32	1	1
88	89	1	1
118	119	0	1
195	196	1	1
215	216	1	1
258	259	1	1
268	269	1	1
269	270	1	1
297	298	0	1
309	310	1	1
385	306	1	1
386	387	1	1
387	308	1	1
311	312	1	1
318	319	1	1
319	320	1	1
325	326	1	1
332	333	0	1
334	335	1	1
337	338	1	1
341	342	1	1
373	374	0	1
377	378	0	1
380	381	1	1
390	391	1	1
393	394	1	1
435	436	1	1
438	439	0	1
498	499	0	1
505	506	0	1
527	528	0	1
537	538	1	1
544	545	0	1
550	551	1	1
557	558	0	1
581	582	1	1

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18 ✓ 0.0000 Z1b Z1b

	Z1b	Z1b
0	259	259
1	269	1
2	269	1

{x}

	297	298
0	298	0
1	299	1
2	305	306

PassengerId Survived Pclass \

PassengerId	Survived	Pclass	\
306	307	1	1
307	308	1	1
311	312	1	1
318	319	1	1
319	320	1	1
325	326	1	1
332	333	0	1
334	335	1	1
337	338	1	1
341	342	1	1
373	374	0	1
377	378	0	1
380	381	1	1
390	391	1	1
393	394	1	1
435	436	1	1
438	439	0	1
469	469	0	1
485	506	0	1
527	528	0	1
537	538	1	1
544	545	0	1
550	551	1	1
557	558	0	1
581	582	1	1
609	610	1	1
659	660	0	1
668	661	1	1
679	680	1	1
699	699	0	1
700	701	1	1
708	709	1	1
716	717	1	1
730	731	1	1
737	738	1	1
742	743	1	1
763	764	1	1
779	780	1	1
802	803	1	1
856	857	1	1

Name Sex Age SibSp \

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		Name	Sex	Age	SibSp	Pclass
1s	27	Fortune, Mr. Charles Alexander	male	19.00	3	3
[x]	31	Spencer, Mrs. William Augustus (Marie Eugenie)	female	Nan	1	1
	88	Fortune, Miss. Mabel Helen	female	23.00	3	3
	118	Baxter, Mr. Ulrich Edmond	male	24.00	0	3
	195	Lurette, Miss. Elise	female	58.00	0	3
	215	Newell, Miss. Madeleine	female	31.00	1	3
	258	Ward, Miss. Anna	female	35.00	0	3
	268	Graham, Mrs. William Thompson (Edith Junkins)	female	58.00	0	3
	269	Bissette, Miss. Amelia	female	35.00	0	3
	297	Allison, Miss. Helen Lorraine	female	2.00	1	3
	299	Baxter, Mrs. James (Helene Delaudenier Chaput)	female	50.00	0	3
	305	Allison, Master. Wladimir Trevor	male	0.00	1	3
	306	Allison, Miss. Wladimir Trevor	female	Nan	0	3
	307	Penasco y Castellana, Mrs. Victor de Satode (W.)	female	17.00	1	3
	311	Ryerson, Miss. Emily Borie	female	18.00	2	3
	318	Wick, Miss. Mary Natalie	female	31.00	0	3
	319	Spedden, Mrs. Frederic Oakley (Margareta Corn...)	female	40.00	1	3
	325	Young, Miss. Maria Grice	female	36.00	0	3
	332	Graham, Mr. George Edward	male	38.00	0	3
	334	Frauenthal, Mrs. Henry William (Clara Heinshel...)	female	Nan	1	3
	337	Burns, Miss. Elizabeth Margaret	female	41.00	1	3
	341	Fortune, Miss. Alice Elizabeth	female	24.00	3	3
	373	Ringgold, Mr. John	male	20.00	0	3
	377	Widener, Mr. Harry Elkins	male	27.00	0	3
	388	Bolton, Miss. Rosalie	female	42.00	0	3
	390	Carter, Mr. William Ernest	male	36.00	1	3
	393	Newell, Miss. Marjorie	female	23.00	1	3
	435	Carter, Miss. Lucile Polk	female	14.00	1	3
	438	Fortune, Mr. Mark	male	64.00	1	3
	498	Allison, Mrs. Hudson J C (Bessie Waldo Daniels)	female	25.00	1	3
	505	Penasco y Castellana, Mr. Victor de Satode	male	18.00	1	3
	527	Farthing, Mr. John	male	Nan	0	3
	537	LeRoy, Miss. Bertha	female	30.00	0	3
	544	Douglas, Mr. Walter Donald	male	50.00	1	3
	550	Thayer, Mr. John Boland Jr	male	17.00	0	3
	557	Robbins, Mr. Victor	male	Nan	0	3
	581	Thayer, Mrs. John Boland (Marian Longstreth M...)	female	39.00	1	3
	609	Shutes, Miss. Elizabeth W	female	40.00	0	3
	659	Newell, Mr. Arthur Webster	male	58.00	0	3
	660	Frauenthal, Dr. Henry William	male	50.00	2	3
	679	Cardeza, Mr. Thomas Drake Martinez	male	36.00	0	3
	689	Madill, Miss. Georgette Alexandra	female	15.00	0	3
	698	Thayer, Mr. John Boland	male	49.00	1	3
	700	Astor, Mrs. John Jacob (Madeleine Talmadge Force)	female	18.00	1	3
	708	Cleaver, Miss. Alice	female	22.00	0	3
	716	Endres, Miss. Caroline Louise	female	30.00	0	3
	730	Allen, Miss. Elisabeth Walton	female	29.00	0	3
	737	Lesurer, Mr. Gustave J	male	35.00	0	3
	742	Ryerson, Miss. Susan Parker "Suzette"	female	21.00	2	3
	763	Carter, Mrs. William Ernest (Lucile Polk)	female	36.00	1	3
	802	Carter, Master. William Thornton II	male	11.00	1	3
	856	Wick, Mrs. George Dennis (Mary Hitchcock)	female	45.00	1	3

	Parch	Ticket	Fare	Cabin	Embarked	Pclass
27	2	19950	263.0000	C23 C25 C27	S	3
31	0	PC 17559	146.5208	B70	C	3
88	2	19950	163.0000	C23 C25 C27	S	3
118	1	PC 17558	247.5208	B58 B60	C	3
195	0	PC 17569	146.5208	B88	C	3
215	0	35273	113.2750	D36	C	3
258	0	PC 17755	512.3292	NaN	C	3
268	1	PC 17582	153.4625	C125	S	3
269	0	PC 17760	135.6333	C99	S	3
297	2	113781	151.5500	C22 C26	S	3
299	1	PC 17558	247.5208	B58 B60	C	3
305	2	113781	151.5500	C22 C26	S	3
306	0	17428	110.8833	NaN	C	3
307	0	PC 17558	164.5000	C65	C	3
311	2	PC 17608	262.3750	B57 B59 B63	B66	3
318	2	36928	164.8667	C7	S	3
319	1	16966	134.5000	E34	C	3
325	0	PC 17760	135.6333	C32	C	3
332	1	PC 17582	153.4625	C91	S	3
334	0	PC 17611	133.6500	NaN	S	3
337	0	16966	134.5000	E40	C	3
341	2	19950	263.0000	C23 C25 C27	S	3
373	0	PC 17760	135.6333	NaN	C	3

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 31    0 PC 17569 146.5208      B78      C
 88    2 19958 263.0000      C23 C25 C27      S
 118   1 PC 17558 247.5208      B58 B60      C
 195   0 PC 17569 146.5208      B80      C
 215   0 35273 113.2750      D36      C
 258   0 PC 17755 512.3292      NaN      C
 268   1 PC 17752 180.4625      C125      S
 269   0 PC 17768 135.5333      C69      S
 297   2 113781 151.5500      C22 C26      S
 299   1 PC 17558 247.5208      B58 B60      C
 305   0 17421 110.8833      NaN      C
 307   0 PC 17758 108.9000      C65      C
 311   2 PC 17608 262.3750      B57 B59 B63 B66      C
 318   2 36928 164.8667      C7      S
 319   1 16966 134.5000      E34      C
 325   0 PC 17768 135.6333      C32      C
 332   1 PC 17582 153.4625      C91      S
 334   0 PC 17755 211.3375      NaN      S
 337   0 16966 134.5000      E40      C
 341   2 19958 263.0000      C23 C25 C27      S
 373   0 PC 17768 135.6333      NaN      C
 377   2 113503 211.5000      C82      C
 388   0 PC 17757 227.5250      NaN      C
 398   2 113768 120.0000      B96 B98      S
 393   0 35273 113.2750      D36      C
 435   2 113768 120.0000      B96 B98      S
 438   4 19958 263.0000      C23 C25 C27      S
 498   2 113781 151.5500      C22 C26      S
 505   0 PC 17755 211.3375      C65      C
 527   0 PC 17752 180.4625      C95      S
 537   0 PC 17761 106.4250      NaN      C
 544   0 PC 17761 106.4250      C86      C
 550   2 17421 110.8833      C70      C
 557   0 PC 17757 227.5250      NaN      C
 581   1 17421 110.8833      C68      C
 609   0 PC 17582 153.4625      C125      S
 659   2 35273 113.2750      D48      C
 660   0 PC 17611 133.6500      NaN      S
 679   1 PC 17755 512.3292      B51 B53 B55      C
 689   1 24168 211.3375      B5      S
 698   1 113781 151.5500      C68      C
 700   0 PC 17757 227.5250      C62 C64      C
 708   0 113781 151.5500      NaN      S
 716   0 PC 17757 227.5250      C45      C
 730   0 24168 211.3375      B5      S
 737   0 PC 17755 512.3292      B101      C
 742   2 PC 17608 262.3750      B57 B59 B63 B66      C
 763   2 113768 120.0000      B96 B98      S
 779   1 24168 211.3375      B3      S
 825   2 113768 120.0000      B96 B98      S

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 856   1 36928 104.8667      NaN      S
  PassengerId Survived Pclass \
 1       1          1
 3       4          1
 6       7          0
 11      12         1
 23      24         1
 ..     ...
 871     872        1
 872     873        0
 879     880        1
 887     888        1
 889     890        1
          Name  Sex  Age  SibSp \
 1  Cumings, Mrs. John Bradley (Florence Briggs Th... female 38.0  1
 3  Futrelle, Mrs. Jacques Heath (Lily May Peel) female 35.0  1
 6  McCarthy, Mr. Timothy J male 54.0  0
 11  Bonnell, Miss. Elizabeth female 58.0  0
 23  Sloper, Mr. William Thompson male 28.0  0
 ..     ...
 871  Beckwith, Mrs. Richard Leonard (Sallie Monpeny) female 47.0  1
 872  Carlsson, Mr. Frans Olof male 33.0  0
 879  Potter, Mrs. Thomas Jr (Lily Alexenia Wilson) female 56.0  0
 887  Graham, Miss. Margaret Edith female 19.0  0
 889  Behr, Mr. Karl Howell male 26.0  0
          Parch  Ticket  Fare Cabin Embarked
 1       0 PC 17599 71.2833      C85      C
 3       0 113803 53.1000      C123      S
 6       0 17463 51.8625      E46      S
 11      0 113783 26.5500      C103      S
 23      0 113788 35.5000      A6      S
 ..     ...
 871     1 11751 52.3547      D35      S
 872     0 695 5.1300      B51 B53 B55      S
 879     1 11767 83.1833      C59      C
 887     0 112053 30.0000      B42      S
 889     0 111369 30.0000      C148      C
 [216 rows x 12 columns]
  PassengerId Survived Pclass \
 9       10        1
 10      11        1
 14      15        0
 22      23        1
 24      25        0
 39      40        1
 43      44        1
 58      59        1
 60      60        2

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[216 rows x 12 columns]

	PassengerId	Survived	Pclass								
9	1	0	1	2							
10	11	1	3								
14	15	0	3								
22	23	1	3								
24	25	0	3								
39	40	1	3								
43	44	1	2								
58	59	1	2								
68	69	1	3								
71	72	0	3								
84	85	1	2								
111	112	0	3								
114	115	0	3								
119	120	0	3								
147	148	0	3								
156	157	1	3								
172	173	1	3								
184	185	1	3								
205	206	0	3								
208	209	1	3								
233	234	1	3								
237	238	1	2								
297	298	0	1								
307	308	1	1								
329	330	1	1								
374	375	0	3								
381	382	1	3								
389	390	1	2								
419	420	0	3								
435	436	1	1								
446	447	1	2								
448	449	1	3								
469	470	1	3								
479	480	1	3								
504	505	1	1								
530	531	1	2								
535	536	1	2								
541	542	0	3								
542	543	0	3								
618	619	1	2								
634	635	0	3								
642	643	0	3								
644	645	1	3								
689	690	1	1								
691	692	1	3								
720	721	1	2								
750	751	1	2								
777	778	1	3								
788	781	1	3								
781	782	1	1								
813	814	0	3								
830	831	1	3								
852	853	0	3								
853	854	1	1								
875	876	1	3								
		Name	Sex	Age	SibSp						
9	Nasser, Mrs. Nicholas (Adele Achem)	female	14.00	1							
10	Sandstrom, Miss. Marguerite Rut	female	4.00	1							
14	Vestrom, Miss. Hulda Amanda Adolfina	female	14.00	0							
22	McGowan, Miss. Anna "Annie"	female	15.00	0							
24	Palsson, Miss. Torborg Danira	female	8.00	3							
39	Nicola-Yarred, Miss. Jamila	female	14.00	1							
43	Laroche, Miss. Simonne Marie Anne Andree	female	3.00	1							
58	West, Miss. Constance Miriam	female	5.00	1							
68	Andersson, Miss. Ebba Algotra	female	17.00	4							
71	Goodwin, Miss. Lillian Amy	female	16.00	5							
84	Ilett, Miss. Bertha	female	17.00	0							
111	Zabour, Miss. Hileni	female	14.50	1							
114	Attalah, Miss. Malake	female	17.00	0							

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Worksheet3.ipynb

233	234	1	3								
237	238	1	2								
297	298	0	1								
307	308	1	1								
329	330	1	1								
374	375	0	3								
381	382	1	3								
389	390	1	2								
419	420	0	3								
435	436	1	1								
446	447	1	2								
448	449	1	3								
469	470	1	3								
479	480	1	3								
504	505	1	1								
530	531	1	2								
535	536	1	2								
541	542	0	3								
542	543	0	3								
618	619	1	2								
634	635	0	3								
642	643	0	3								
644	645	1	3								
689	690	1	1								
691	692	1	3								
720	721	1	2								
750	751	1	2								
777	778	1	3								
788	781	1	3								
781	782	1	1								
813	814	0	3								
830	831	1	3								
852	853	0	3								
853	854	1	1								
875	876	1	3								
		Name	Sex	Age	SibSp						
9	Nasser, Mrs. Nicholas (Adele Achem)	female	14.00	1							
10	Sandstrom, Miss. Marguerite Rut	female	4.00	1							
14	Vestrom, Miss. Hulda Amanda Adolfina	female	14.00	0							
22	McGowan, Miss. Anna "Annie"	female	15.00	0							
24	Palsson, Miss. Torborg Danira	female	8.00	3							
39	Nicola-Yarred, Miss. Jamila	female	14.00	1							
43	Laroche, Miss. Simonne Marie Anne Andree	female	3.00	1							
58	West, Miss. Constance Miriam	female	5.00	1							
68	Andersson, Miss. Ebba Algotra	female	17.00	4							
71	Goodwin, Miss. Lillian Amy	female	16.00	5							
84	Ilett, Miss. Bertha	female	17.00	0							
111	Zabour, Miss. Hileni	female	14.50	1							
114	Attalah, Miss. Malake	female	17.00	0							

		Name	Sex	Age	SibSp	\
1s	9	Nasser, Mrs. Nicholas (Adele Achem)	female	14.00	1	
	10	Sandstrom, Miss. Marguerite Rut	female	4.00	1	
{x}	14	Vestrom, Miss. Hulda Amanda Adolfina	female	14.00	0	
	22	McGowan, Miss. Anna "Annie"	female	15.00	0	
	24	Palsson, Miss. Torborg Danira	female	8.00	3	
	39	Nicola-Yarred, Miss. Jamila	female	14.00	1	
Larache, Miss.	43	Simonne Marie Anne Andre	female	3.00	1	
	58	West, Miss. Constance Mirium	female	5.00	1	
	68	Andersson, Miss. Erna Alexandra	female	17.00	4	
	71	Goodwin, Miss. Ethel Mary	female	17.00	5	
	94	Ilett, Miss. Bertha	female	17.00	0	
	111	Zabour, Miss. Hilene	female	14.50	1	
	114	Attalah, Miss. Melake	female	17.00	0	
	119	Andersson, Miss. Ellis Anna Maria	female	2.00	4	
	147	Ford, Miss. Robina Maggie "Ruby"	female	9.00	2	
	156	Gilnagh, Miss. Katherine "Katie"	female	16.00	0	
	172	Johnson, Miss. Eleanor Ileen	female	1.00	1	
	184	Kink-Heilmann, Miss. Luise Gretchen	female	4.00	0	
	205	Strom, Miss. Telma Matilda	female	2.00	0	
	208	Carr, Miss. Helen "Ellen"	female	16.00	0	
	233	Asplund, Miss. Lillian Gerdrud	female	5.00	4	
	237	Collyer, Miss. Mary "Mittie"	female	0.00	0	
	297	Allison, Miss. Helen Loraine	female	2.00	1	
307	Penasco y Castellana, Mrs. Victor de Satoda (Marie)	female	17.00	1		
	329	Hipbach, Miss. Jean Gertrude	female	16.00	0	
	374	Palsson, Miss. Stina Viola	female	3.00	3	
	381	Nakid, Miss. Maria ("Mary")	female	1.00	0	
	389	Lehmann, Miss. Bertha	female	17.00	0	
	419	Van Impe, Miss. Catharina	female	10.00	0	
	435	Carter, Miss. Lucile Polk	female	14.00	1	
	446	Mellinger, Miss. Madeleine Violet	female	13.00	0	
	448	Baclini, Miss. Maria Caroline	female	5.00	2	
	469	Baclini, Miss. Helene Barbara	female	0.75	2	
	479	Hirvonen, Miss. Hildur E	female	2.00	0	
	504	Maioni, Miss. Roberta	female	16.00	0	
	530	Quick, Miss. Phyllis May	female	2.00	1	
	535	Hart, Miss. Eva Miriam	female	7.00	0	
	541	Andersson, Miss. Ingeborg Constanzia	female	9.00	4	
	542	Andersson, Miss. Sigrid Elisabeth	female	11.00	4	
	618	Becker, Miss. Marion Louise	female	4.00	2	
	634	Skoog, Miss. Mabel	female	9.00	3	
	642	Skoog, Miss. Margit Elizabeth	female	2.00	3	
	644	Baclini, Miss. Eugenie	female	0.75	2	
	669	Madill, Miss. Georgette Alexandra	female	15.00	0	
	691	Madill, Miss. Georgette Alexandra	female	15.00	0	
	720	Karun, Miss. Mary	female	4.00	0	
	750	Harper, Miss. Annie Jessie "Nina"	female	6.00	0	
	777	Wells, Miss. Joan	female	4.00	1	
	780	Emanuel, Miss. Virginia Etel	female	5.00	0	
	780	Ayoub, Miss. Banoura	female	13.00	0	

		Parch	Ticket	Fare	Cabin	Embarked
9	0	237736	30.0708	NaN	C	
10	1	PP 9549	16.7000	G6	S	
14	0	350406	7.8542	NaN	S	
22	0	330923	8.0292	NaN	Q	
24	1	349909	21.0750	NaN	S	
39	0	2651	11.2417	NaN	C	
43	2	SC/Paris 23	45.2000	NaN	C	
58	2	C.A. 34653	27.7500	NaN	S	
68	2	3101281	7.0200	NaN	S	
71	2	CA 2144	46.9000	NaN	S	
84	0	SO/C 14885	19.5000	NaN	S	
111	0	2665	14.4542	NaN	C	
114	0	2627	14.4583	NaN	C	
119	2	347082	31.2750	NaN	S	
147	2	W./C. 6608	34.3750	NaN	S	
156	0	35851	7.7333	NaN	Q	
172	1	347742	11.1333	NaN	S	
184	2	315152	22.6000	NaN	S	
205	1	347854	18.4625	G6	S	
208	0	367231	7.7500	NaN	Q	
233	2	347877	31.3875	NaN	S	
237	2	C.A. 31921	26.2500	NaN	S	
297	2	113781	151.5500	C22 C26	S	
307	0	PC 17758	108.9000	C65	C	
329	1	111361	57.9792	B18	C	
374	1	349909	21.0750	NaN	S	
381	2	2653	15.7417	NaN	C	
389	0	SC 1748	12.0000	NaN	C	
419	2	345773	24.1500	NaN	S	
435	2	113760	120.0000	B96 B98	S	
446	1	250644	19.5000	NaN	S	

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RAM Disk Gemini

	PassengerId	Survived	Pclass	\
0	1	0	3	
1	2	1	1	
2	3	1	3	

```

worksheet3.ipynb
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+ Code + Text
[1]: 887     ... 230433 26.0000 NaN S
888     ... 34068 10.5000 NaN S
889     ... 211536 13.0000 NaN S
{x} [887] 887     ... 230433 26.0000 NaN S
888     ... 34068 10.5000 NaN S
889     ... 211536 13.0000 NaN S
[887]: Parch      Ticket      Fare Cabin Embarked
0         0       A/5 21171    7.2500   NaN   S
1         0        PC 17599  71.2833   C85   C
2         0  STON/O2. 3101282  79.9250   NaN   S
3         0       113803  53.1000  C123   S
4         0       373450  8.0500   NaN   S
..        ...
884     ...  SOTON/OO 392076  7.0500   NaN   ...
885     ...       211536 13.0000   NaN   S
887     ...       112053 30.0000   B42   S
888     2       W.C. 6607  23.4500   NaN   S
889     0       111369 30.0000  C148   C
[887]: [812 rows x 12 columns]
[887]: PassengerId  Survived  Pclass \
1           1         1
3           1         1
6           0         1
9           1         2
11          1         1
..          ...
880          1         2
883          0         2
886          0         2
887          1         1
889          1         1
[887]: Name      Sex   Age  SibSp \
1  Cumings, Mrs. John Bradley (Florence Briggs Th... female  38.0      1
3  Futrelle, Mrs. Jacques Heath (Lily May Peel) female  35.0      1
6   McCarthy, Mr. Frederick James             male  54.0      0
9   Nassar, Mrs. Nicholas (Adele Achem)           female  14.0      1
11  Bonnell, Miss. Elizabeth                   female  58.0      0
..          ...
880  Shelley, Mrs. William (Imanita Parrish Hall) female  25.0      0
883  Banfield, Mr. Frederick James             male  28.0      0
886  Montvila, Rev. Juozas                   male  27.0      0
887  Graham, Miss. Margaret Edith             female  19.0      0
889  Behr, Mr. Karl Howell                 male  26.0      0
[887]: Parch      Ticket      Fare Cabin Embarked
1         0       PC 17599  71.2833   C85   C
3         0       113803  53.1000  C123   S
6         0       17463  51.8625   E46   S
9         0       237736 30.0788   NaN   C
11        0       113783 26.5500  C103   S

```

```

worksheet3.ipynb
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+ Code + Text
[2]: [2]: [880, 883, 886, 887, 889]
[2]: [880, 883, 886, 887, 889]
{x} [880]: [2]: [880, 883, 886, 887, 889]
[2]: [880, 883, 886, 887, 889]
[880]: [400 rows x 12 columns]
[880]: # Fill missing values in Age with the median
titanic['Age'].fillna(titanic['Age'].median(), inplace=True)

# Add fare_per_year column
titanic['fare_per_year'] = titanic['Fare'] / titanic['Age']

# Subset rows where fare_per_year > 5
high_fare_age = titanic[titanic['fare_per_year'] > 5]

# Sort by descending fare_per_year
high_fare_age_srt = high_fare_age.sort_values('fare_per_year', ascending=False)

# Select Name and fare_per_year columns
result = high_fare_age_srt[['Name', 'fare_per_year']]
print(result)
[880]: Name      fare_per_year
305  Allison, Master. Hudson Trevor  164.728261
297  Allison, Miss. Helen Loraine  75.775000
386  Goodwin, Master. Sidney Leonard  46.900000
164  Paulia, Master. Eino Viljami  39.687500
183  Becker, Master. Richard F  39.000000
..          ...
348  Coutts, Master. William Loch "William"  5.300000
31  Spencer, Mrs. William Augustus (Marie Eugenie)  5.232886
205  Strom, Miss. Telma Matilda  5.231250
813  Andersson, Miss. Ebba Iris Alfrida  5.212500
488  Goodwin, Master. Harold Victor  5.211111
[880]: [71 rows x 2 columns]
[880]: <ipython-input-3-b79c66821583>:2: FutureWarning: A value is trying to be set on a copy of a DataFrame or Series through chained assignment using an inplace method. The behavior will change in pandas 3.0. This inplace method will never work because the intermediate object on which we are setting values always behaves as a copy.
[880]: For example, when doing 'df[col].method(value, inplace=True)', try using 'df.method({col: value}, inplace=True)' or 'df[col] = df[col].method(value)' instead, to perform the operation inplace.
[880]: titanic['Age'].fillna(titanic['Age'].median(), inplace=True)

```

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```
[4] # Add fare_per_class column
titanic['fare_per_class'] = titanic['Fare'] / titanic['Pclass']

{x}
# Subset for adult males
adult_males = titanic[(titanic['Age'] >= 18) & (titanic['Sex'] == 'male')]

# Sort by descending fare_per_class
adult_males_srt = adult_males.sort_values('fare_per_class', ascending=False)

# Select Name, Age, and fare_per_class columns
result = adult_males_srt[['Name', 'Age', 'fare_per_class']]
print(result)
```

	Name	Age	fare_per_class
737	Lesurer, Mr. Gustave J	35.0	512.3292
679	Cardeza, Mr. Thomas Drake Martinez	36.0	512.3292
438	Fortune, Mr. Mark	64.0	263.0000
27	Fortune, Mr. Charles Alexander	19.0	263.0000
118	Baxter, Mr. Quigg Edmond	24.0	247.5208
..	...	...	...
806	Andrews, Mr. Thomas Jr	39.0	0.0000
481	Frost, Mr. Anthony Wood "Archie"	28.0	0.0000
413	Cunningham, Mr. Alfred Fleming	28.0	0.0000
466	Campbell, Mr. William	28.0	0.0000
271	Tornquist, Mr. William Henry	25.0	0.0000

[519 rows x 3 columns]

```
[5] # Total fare
total_fare = titanic['Fare'].sum()

# Fare by class
fare_by_class = titanic.groupby('Pclass')['Fare'].sum()

# Proportion of fare revenue by class
fare_percentage = (fare_by_class / total_fare) * 100
print(fare_percentage)
```

Pclass	Fare Percentage
1	63.349288
2	13.249629
3	23.401084

Name: Fare, dtype: float64

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```
[5] Pclass
1    63.349288
2    13.249629
3    23.401084
Name: Fare, dtype: float64
```

```
[6]
# Create age_group column
def age_group(age):
    if age < 18:
        return 'child'
    elif age >= 65:
        return 'senior'
    else:
        return 'adult'

titanic['age_group'] = titanic['Age'].apply(age_group)

# Total passengers
total_passengers = len(titanic)

# Passengers by age group
age_group_count = titanic['age_group'].value_counts()

# Proportion of passengers by age group
age_group_percentage = (age_group_count / total_passengers) * 100
print(age_group_percentage)
```

age_group	count
adult	86.08053
child	12.682379
senior	1.234568

Name: count, dtype: float64

```
[7]
import matplotlib.pyplot as plt

# Line plot: Monthly sales
data = {'Month': ['Jan', 'Feb', 'Mar', 'Apr'], 'Sales': [200, 220, 250, 280]}
df = pd.DataFrame(data)
df.plot(x='Month', y='Sales', kind='line', marker='o', title='Monthly Sales')
plt.show()
```

```
[8]
# Bar chart: Category comparison
data = {'Category': ['A', 'B', 'C'], 'Values': [10, 20, 15]}
df = pd.DataFrame(data)
```

