Program 2: Data Transformation with Pandas: Explore more advanced data transformation techniques using Pandas. Perform merging, grouping, pivoting, and reshaping data for analysis.

Step1: Import pandas

import pandas as pd

Step2: Read titanic.csv le to the dataframe variable titanic

titanic = pd.read_csv("titanic.csv")
titanic

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/02. 3101282	7
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53
4 (

Step 3: To see the rst 8 rows of the dataframe

titanic.head(8)

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fi
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71.28
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/02. 3101282	7.92
4										

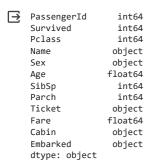
Step 4: To see the last 10 rows of the dataframe

titanic.tail(10)

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket
881	882	0	3	Markun, Mr. Johann	male	33.0	0	0	349257
882	883	0	3	Dahlberg, Miss. Gerda Ulrika	female	22.0	0	0	7552 1
883	884	0	2	Banfield, Mr. Frederick James	male	28.0	0	0	C.A./SOTON . 34068
884	885	0	3	Sutehall, Mr. Henry Jr	male	25.0	0	0	SOTON/OQ 392076
4									•

Step5: Show the data types of the individual series in the dataframe

titanic.dtypes



Step6: Write the data to excel le using the to_excel function

titanic.to_excel("titanic.xlsx", sheet_name="passengers", index=False)

Step7: Load the data in the excel titanic.xlsx to a dataframe (say ship)

ship =pd.read_excel("titanic.xlsx", sheet_name="passengers")
ship
ship.head(4)

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	NaN	S
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th	female	38.0	1	0	PC 17599	71.2833	C85	С
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/02. 3101282	7.9250	NaN	S

Step8: Provide the technical summary of the dataframe

ship.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 12 columns):
Column Non-Null Count Dtvi

Jata	columns (tota	al 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	204 non-null	object
11	Embarked	889 non-null	object

dtypes: float64(2), int64(5), object(5)
memory usage: 83.7+ KB

Conclusion: The provided program offers a practical demonstration of basic data handling tasks using Pandas in Python. It covers essential operations like data creation, extraction, exploration, and manipulation. The code snippets are concise and clear, making them suitable for beginners to understand and replicate. While these tasks serve as a good starting point, real-world scenarios may demand more advanced techniques and analyses.