

pandas manipulation

November 6, 2019

```
[66]: import numpy as np
import pandas as pd
import os
import matplotlib.pyplot as plt
import numpy as np

titanic = pd.read_csv(r'desktop/bhupen python/data sets/titanic-test.csv')
titanic.head(5)
```

```
[66]:
```

	PassengerId	Pclass	Name	Sex	\
0	892	3	Kelly, Mr. James	male	
1	893	3	Wilkes, Mrs. James (Ellen Needs)	female	
2	894	2	Myles, Mr. Thomas Francis	male	
3	895	3	Wirz, Mr. Albert	male	
4	896	3	Hirvonen, Mrs. Alexander (Helga E Lindqvist)	female	

	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	34.5	0	0	330911	7.8292	NaN	Q
1	47.0	1	0	363272	7.0000	NaN	S
2	62.0	0	0	240276	9.6875	NaN	Q
3	27.0	0	0	315154	8.6625	NaN	S
4	22.0	1	1	3101298	12.2875	NaN	S

```
[67]: # Extracting few columns
titanic[['Name', 'Pclass']].head(5)
```

```
[67]:
```

	Name	Pclass
0	Kelly, Mr. James	3
1	Wilkes, Mrs. James (Ellen Needs)	3
2	Myles, Mr. Thomas Francis	2
3	Wirz, Mr. Albert	3
4	Hirvonen, Mrs. Alexander (Helga E Lindqvist)	3

```
[ ]:
```

```
[68]: type(titanic[['Name', 'Pclass']].head(5))
```

```
[68]: pandas.core.frame.DataFrame
```

```
[69]: titanic['Age'].head(5)
```

```
[69]: 0    34.5
      1    47.0
      2    62.0
      3    27.0
      4    22.0
      Name: Age, dtype: float64
```

```
[70]: # Series type for a one column
      type(titanic['Age'])
```

```
[70]: pandas.core.series.Series
```

```
[71]: # datatypes
      titanic.dtypes
```

```
[71]: PassengerId    int64
      Pclass        int64
      Name          object
      Sex           object
      Age           float64
      SibSp         int64
      Parch         int64
      Ticket        object
      Fare          float64
      Cabin         object
      Embarked      object
      dtype: object
```

```
[72]: # Checking the object types
      titanic.dtypes == 'object'
```

```
[72]: PassengerId    False
      Pclass        False
      Name          True
      Sex           True
      Age           False
      SibSp         False
      Parch         False
      Ticket        True
      Fare          False
      Cabin         True
      Embarked      True
      dtype: bool
```

```
[73]: titanic.dtypes[titanic.dtypes == 'object']
```

```
[73]: Name          object
      Sex           object
      Ticket        object
      Cabin         object
      Embarked      object
```

dtype: object

```
[74]: titanic.dtypes[titanic.dtypes == 'object'].index
```

```
[74]: Index(['Name', 'Sex', 'Ticket', 'Cabin', 'Embarked'], dtype='object')
```

```
[75]: # Loading the values satisfying the above condition
a = titanic.dtypes[titanic.dtypes == 'object'].index
titanic[a].head(5)
```

```
[75]:
```

	Name	Sex	Ticket	Cabin	\
0	Kelly, Mr. James	male	330911	NaN	
1	Wilkes, Mrs. James (Ellen Needs)	female	363272	NaN	
2	Myles, Mr. Thomas Francis	male	240276	NaN	
3	Wirz, Mr. Albert	male	315154	NaN	
4	Hirvonen, Mrs. Alexander (Helga E Lindqvist)	female	3101298	NaN	

	Embarked
0	Q
1	S
2	Q
3	S
4	S

```
[76]: b = titanic.dtypes[titanic.dtypes == 'int64'].index
titanic[b].head(5)
```

```
[76]:
```

	PassengerId	Pclass	SibSp	Parch
0	892	3	0	0
1	893	3	1	0
2	894	2	0	0
3	895	3	0	0
4	896	3	1	1

```
[77]: # Column describe
titanic[a].describe()
```

```
[77]:
```

	Name	Sex	Ticket	Cabin	Embarked
count	418	418	418	91	418
unique	418	2	363	76	3
top	Shaughnessy, Mr. Patrick	male	PC 17608	B57 B59 B63 B66	S
freq	1	266	5	3	270

```
[78]: titanic.describe()
```

```
[78]:
```

	PassengerId	Pclass	Age	SibSp	Parch	Fare
count	418.000000	418.000000	332.000000	418.000000	418.000000	417.000000
mean	1100.500000	2.265550	30.272590	0.447368	0.392344	35.627188
std	120.810458	0.841838	14.181209	0.896760	0.981429	55.907576
min	892.000000	1.000000	0.170000	0.000000	0.000000	0.000000
25%	996.250000	1.000000	21.000000	0.000000	0.000000	7.895800
50%	1100.500000	3.000000	27.000000	0.000000	0.000000	14.454200

75%	1204.750000	3.000000	39.000000	1.000000	0.000000	31.500000
max	1309.000000	3.000000	76.000000	8.000000	9.000000	512.329200

[79]: *# Sorting a column*

```
sorted(titanic['Name'])
```

[79]: ['Abbott, Master. Eugene Joseph',
'Abelseth, Miss. Karen Marie',
'Abelseth, Mr. Olaus Jorgensen',
'Abrahamsson, Mr. Abraham August Johannes',
'Abraham, Mrs. Joseph (Sophie Halaut Easu)',
'Aks, Master. Philip Frank',
'Aldworth, Mr. Charles Augustus',
'Allison, Mr. Hudson Joshua Creighton',
'Andersen, Mr. Albert Karvin',
'Andersson, Miss. Ida Augusta Margareta',
'Andersson, Mr. Johan Samuel',
'Andrew, Mr. Frank Thomas',
'Angheloff, Mr. Minko',
'Angle, Mr. William A',
'Aronsson, Mr. Ernst Axel Algot',
'Ashby, Mr. John',
'Asplund, Master. Carl Edgar',
'Asplund, Master. Filip Oscar',
'Asplund, Mr. Carl Oscar Vilhelm Gustafsson',
'Asplund, Mr. Johan Charles',
'Assaf Khalil, Mrs. Mariana (Miriam)''',
'Assaf, Mr. Gerios',
'Assam, Mr. Ali',
'Astor, Col. John Jacob',
'Baccos, Mr. Raffull',
'Badman, Miss. Emily Louisa',
'Baimbrigge, Mr. Charles Robert',
'Barry, Miss. Julia',
'Beattie, Mr. Thomson',
'Beauchamp, Mr. Henry James',
'Becker, Miss. Ruth Elizabeth',
'Becker, Mrs. Allen Oliver (Nellie E Baumgardner)',
'Bentham, Miss. Lilian W',
'Betros, Master. Seman',
'Bird, Miss. Ellen',
'Birnbaum, Mr. Jakob',
'Bjorklund, Mr. Ernst Herbert',
'Bonnell, Miss. Caroline',
'Borebank, Mr. John James',
'Botsford, Mr. William Hull',
'Boulos, Master. Akar',

'Bowen, Miss. Grace Scott',
'Bowenur, Mr. Solomon',
'Bradley, Miss. Bridget Delia',
'Brady, Mr. John Bertram',
'Braf, Miss. Elin Ester Maria',
'Brandeis, Mr. Emil',
'Brobeck, Mr. Karl Rudolf',
'Brown, Miss. Edith Eileen',
'Brown, Mrs. John Murray (Caroline Lane Lamson)',
'Bryhl, Miss. Dagmar Jenny Ingeborg ',
'Buckley, Miss. Katherine',
'Buckley, Mr. Daniel',
'Bucknell, Mrs. William Robert (Emma Eliza Ward)',
'Burns, Miss. Mary Delia',
'Cacic, Miss. Manda',
'Cacic, Mr. Jego Grga',
'Caldwell, Mr. Albert Francis',
'Canavan, Mr. Patrick',
'Candee, Mrs. Edward (Helen Churchill Hungerford)',
'Caram, Mr. Joseph',
'Cardeza, Mrs. James Warburton Martinez (Charlotte Wardle Drake)',
'Carlsson, Mr. Carl Robert',
'Carr, Miss. Jeannie',
'Carrau, Mr. Jose Pedro',
'Carver, Mr. Alfred John',
'Case, Mr. Howard Brown',
'Cassebeer, Mrs. Henry Arthur Jr (Eleanor Genevieve Fosdick)',
'Cavendish, Mrs. Tyrell William (Julia Florence Siegel)',
'Chaffee, Mrs. Herbert Fuller (Carrie Constance Toogood)',
'Chapman, Mrs. John Henry (Sara Elizabeth Lawry)',
'Chaudanson, Miss. Victorine',
'Chevre, Mr. Paul Romaine',
'Chisholm, Mr. Roderick Robert Crispin',
'Christy, Mrs. (Alice Frances)',
'Chronopoulos, Mr. Demetrios',
'Clark, Mr. Walter Miller',
'Clark, Mrs. Walter Miller (Virginia McDowell)',
'Clarke, Mr. Charles Valentine',
'Colbert, Mr. Patrick',
'Collett, Mr. Sidney C Stuart',
'Compton, Mr. Alexander Taylor Jr',
'Compton, Mrs. Alexander Taylor (Mary Eliza Ingersoll)',
'Conlon, Mr. Thomas Henry',
'Connolly, Miss. Kate',
'Cook, Mrs. (Selena Rogers)',
'Cor, Mr. Bartol',
'Cor, Mr. Ivan',

'Corbett, Mrs. Walter H (Irene Colvin)',
 'Corey, Mrs. Percy C (Mary Phyllis Elizabeth Miller)',
 'Cornell, Mrs. Robert Clifford (Malvina Helen Lamson)',
 'Cotterill, Mr. Henry Harry"',
 'Coutts, Mrs. William (Winnie Minnie" Treanor)"',
 'Crafton, Mr. John Bertram',
 'Cribb, Miss. Laura Alice',
 'Crosby, Mrs. Edward Gifford (Catherine Elizabeth Halstead)',
 'Cumings, Mr. John Bradley',
 'Daher, Mr. Shedid',
 'Daly, Miss. Margaret Marcella Maggie"',
 'Danbom, Master. Gilbert Sigvard Emanuel',
 'Daniels, Miss. Sarah',
 'Davidson, Mrs. Thornton (Orian Hays)',
 'Davies, Mr. Evan',
 'Davies, Mr. John Samuel',
 'Davies, Mr. Joseph',
 'Davies, Mrs. John Morgan (Elizabeth Agnes Mary White) ',
 'Davison, Mr. Thomas Henry',
 'Deacon, Mr. Percy William',
 'Dean, Miss. Elizabeth Gladys Millvina"',
 'Dean, Mrs. Bertram (Eva Georgetta Light)',
 'Delalic, Mr. Redjo',
 'Demetri, Mr. Marinko',
 'Denbury, Mr. Herbert',
 'Dennis, Mr. William',
 'Dibden, Mr. William',
 'Dika, Mr. Mirko',
 'Dintcheff, Mr. Valtcho',
 'Dodge, Dr. Washington',
 'Dodge, Mrs. Washington (Ruth Vidaver)',
 'Douglas, Mrs. Frederick Charles (Mary Helene Baxter)',
 'Douglas, Mrs. Walter Donald (Mahala Dutton)',
 'Doyle, Miss. Elizabeth',
 'Drapkin, Miss. Jennie',
 'Drew, Master. Marshall Brines',
 'Drew, Mr. James Vivian',
 'Dulles, Mr. William Crothers',
 'Duquemin, Mr. Joseph',
 'Duran y More, Miss. Florentina',
 'Dyker, Mr. Adolf Fredrik',
 'Dyker, Mrs. Adolf Fredrik (Anna Elisabeth Judith Andersson)',
 'Earnshaw, Mrs. Boulton (Olive Potter)',
 'Elias, Mr. Joseph',
 'Enander, Mr. Ingvar',
 'Evans, Miss. Edith Corse',
 'Everett, Mr. Thomas James',

'Faunthorpe, Mr. Harry',
 'Fillbrook, Mr. Joseph Charles',
 'Finoli, Mr. Luigi',
 'Flegenheim, Mrs. Alfred (Antoinette)',
 'Fleming, Miss. Honora',
 'Foley, Mr. Joseph',
 'Foley, Mr. William',
 'Ford, Mr. Arthur',
 'Ford, Mr. Edward Watson',
 'Fortune, Miss. Ethel Flora',
 'Fortune, Mrs. Mark (Mary McDougald)',
 'Fox, Mr. Patrick',
 'Franklin, Mr. Charles (Charles Fardon)',
 'Franklin, Mr. Thomas Parham',
 'Frauenthal, Mr. Isaac Gerald',
 'Frolicher-Stehli, Mrs. Maxmillian (Margaretha Emerentia Stehli)',
 'Gale, Mr. Harry',
 'Geiger, Miss. Amalie',
 'Gibson, Miss. Dorothy Winifred',
 'Gibson, Mrs. Leonard (Pauline C Boeson)',
 'Gilbert, Mr. William',
 'Giles, Mr. Edgar',
 'Giles, Mr. Ralph',
 'Goldsmith, Mr. Nathan',
 'Goodwin, Miss. Jessie Allis',
 'Goodwin, Mr. Charles Frederick',
 'Gracie, Col. Archibald IV',
 'Greenfield, Mrs. Leo David (Blanche Strouse)',
 'Guest, Mr. Robert',
 'Hagardon, Miss. Kate',
 'Hansen, Mrs. Claus Peter (Jennie L Howard)',
 'Harbeck, Mr. William H',
 'Harder, Mrs. George Achilles (Dorothy Annan)',
 'Hays, Mr. Charles Melville',
 'Head, Mr. Christopher',
 'Hee, Mr. Ling',
 'Hellstrom, Miss. Hilda Maria',
 'Henriksson, Miss. Jenny Lovisa',
 'Herman, Miss. Kate',
 'Herman, Mr. Samuel',
 'Hilliard, Mr. Herbert Henry',
 'Hiltunen, Miss. Marta',
 'Hipkins, Mr. William Edward',
 'Hirvonen, Mrs. Alexander (Helga E Lindqvist)',
 'Hocking, Miss. Ellen Nellie"',
 'Hocking, Mr. Samuel James Metcalfe',
 'Hold, Mrs. Stephen (Annie Margaret Hill)',

'Holthen, Mr. Johan Martin',
 'Howard, Miss. May Elizabeth',
 'Howard, Mr. Benjamin',
 'Howard, Mrs. Benjamin (Ellen Truelove Arman)',
 'Hyman, Mr. Abraham',
 'Ilieff, Mr. Ylio',
 'Ilmakangas, Miss. Ida Livija',
 'Ismay, Mr. Joseph Bruce',
 'Jefferys, Mr. Clifford Thomas',
 'Jefferys, Mr. Ernest Wilfred',
 'Johansson Palmquist, Mr. Oskar Leander',
 'Johansson, Mr. Nils',
 'Johnston, Master. William Arthur Willie"',
 'Johnston, Mrs. Andrew G (Elizabeth Lily" Watson)"',
 'Jones, Mr. Charles Cresson',
 'Jonsson, Mr. Nils Hilding',
 'Julian, Mr. Henry Forbes',
 'Karlsson, Mr. Einar Gervasius',
 'Karlsson, Mr. Julius Konrad Eugen',
 'Karnes, Mrs. J Frank (Claire Bennett)',
 'Karun, Mr. Franz',
 'Katavelas, Mr. Vassilios (Catavelas Vassilios)"',
 'Keane, Mr. Daniel',
 'Keeping, Mr. Edwin',
 'Kelly, Mr. James',
 'Kennedy, Mr. John',
 'Kenyon, Mr. Frederick R',
 'Khalil, Mr. Betros',
 'Khalil, Mrs. Betros (Zahie Maria" Elias)"',
 'Kiernan, Mr. John',
 'Kimball, Mrs. Edwin Nelson Jr (Gertrude Parsons)',
 'Kink, Miss. Maria',
 'Kink-Heilmann, Mr. Anton',
 'Kink-Heilmann, Mrs. Anton (Luise Heilmann)',
 'Klasen, Miss. Gertrud Emilia',
 'Klasen, Mrs. (Hulda Kristina Eugenia Lofqvist)',
 'Krekorian, Mr. Neshan',
 'Kreuchen, Miss. Emilie',
 'Lahtinen, Rev. William',
 'Lamb, Mr. John Joseph',
 'Lane, Mr. Patrick',
 'Laroche, Miss. Louise',
 'Larsson-Rondberg, Mr. Edvard A',
 'Lefebre, Mrs. Frank (Frances)',
 'Lennon, Miss. Mary',
 'Lindeberg-Lind, Mr. Erik Gustaf (Mr Edward Lingrey)"',
 'Lindell, Mrs. Edvard Bengtsson (Elin Gerda Persson)',

'Lindstrom, Mrs. Carl Johan (Sigrid Posse)',
 'Linehan, Mr. Michael',
 'Lines, Mrs. Ernest H (Elizabeth Lindsey James)',
 'Lingane, Mr. John',
 'Lithman, Mr. Simon',
 'Lockyer, Mr. Edward',
 'Loring, Mr. Joseph Holland',
 'Louch, Mr. Charles Alexander',
 'Lundin, Miss. Olga Elida',
 'Lundstrom, Mr. Thure Edvin',
 'Lyntakoff, Mr. Stanko',
 'MacKay, Mr. George William',
 'Maguire, Mr. John Edward',
 'Mahon, Miss. Bridget Delia',
 'Mahon, Mr. John',
 'Makinen, Mr. Kalle Edvard',
 'Malachard, Mr. Noel',
 'Mallet, Mrs. Albert (Antoinette Magnin)',
 'Mangiavacchi, Mr. Serafino Emilio',
 'Mardirosian, Mr. Sarkis',
 'Marvin, Mrs. Daniel Warner (Mary Graham Carmichael Farquarson)',
 'Matinoff, Mr. Nicola',
 'Maybery, Mr. Frank Hubert',
 'McCaffry, Mr. Thomas Francis',
 'McCarthy, Miss. Catherine Katie'",
 'McCoy, Miss. Alicia',
 'McCrae, Mr. Arthur Gordon',
 'McCrie, Mr. James Matthew',
 'McGowan, Miss. Katherine',
 "McNamee, Mrs. Neal (Eileen O'Leary)",
 'McNeill, Miss. Bridget',
 'Midtsjo, Mr. Karl Albert',
 'Miles, Mr. Frank',
 'Minahan, Mrs. William Edward (Lillian E Thorpe)',
 'Minkoff, Mr. Lazar',
 'Mock, Mr. Philipp Edmund',
 'Moore, Mr. Clarence Bloomfield',
 'Moubarek, Mrs. George (Omine Amenia" Alexander)"',
 'Mulvihill, Miss. Bertha E',
 'Murphy, Miss. Nora',
 'Myles, Mr. Thomas Francis',
 'Nakid, Mrs. Said (Waika Mary" Mowad)"',
 'Nancarrow, Mr. William Henry',
 'Nasr, Mr. Mustafa',
 'Naughton, Miss. Hannah',
 'Nesson, Mr. Israel',
 'Nieminen, Miss. Manta Josefina',

'Niklasson, Mr. Samuel',
 'Nilsson, Miss. Berta Olivia',
 'Nilsson, Mr. August Ferdinand',
 'Nourney, Mr. Alfred (Baron von Drachstedt)"',
 "O'Connor, Mr. Patrick",
 "O'Donoghue, Ms. Bridget",
 "O'Keefe, Mr. Patrick",
 'Oliva y Ocana, Dona. Fermina',
 'Olsen, Master. Artur Karl',
 'Olsson, Mr. Oscar Wilhelm',
 'Omont, Mr. Alfred Fernand',
 'Oreskovic, Miss. Jelka',
 'Ostby, Miss. Helene Ragnhild',
 'Ovies y Rodriguez, Mr. Servando',
 'Oxenham, Mr. Percy Thomas',
 'Pallas y Castello, Mr. Emilio',
 'Palsson, Master. Paul Folke',
 'Parker, Mr. Clifford Richard',
 'Payne, Mr. Vivian Ponsonby',
 'Peacock, Master. Alfred Edward',
 'Peacock, Miss. Treasteall',
 'Peacock, Mrs. Benjamin (Edith Nile)',
 'Pearce, Mr. Ernest',
 'Pedersen, Mr. Olaf',
 'Peltomaki, Mr. Nikolai Johannes',
 'Peruschitz, Rev. Joseph Maria',
 'Peter, Master. Michael J',
 'Petersen, Mr. Marius',
 'Phillips, Miss. Alice Frances Louisa',
 'Phillips, Mr. Escott Robert',
 'Pokrnic, Mr. Mate',
 'Pokrnic, Mr. Tome',
 'Portaluppi, Mr. Emilio Ilario Giuseppe',
 'Pulbaum, Mr. Franz',
 'Quick, Miss. Winifred Vera',
 'Rasmussen, Mrs. (Lena Jacobsen Solvang)',
 'Reynolds, Mr. Harold J',
 'Rheims, Mr. George Alexander Lucien',
 'Rice, Master. Albert',
 'Riihivouri, Miss. Susanna Juhantytar Sanni"',
 'Riordan, Miss. Johanna Hannah"',
 'Risien, Mrs. Samuel (Emma)',
 'Robins, Mr. Alexander A',
 'Rogers, Mr. Reginald Harry',
 'Rosblom, Miss. Salli Helena',
 'Rosenbaum, Miss. Edith Louise',
 'Rosenshine, Mr. George (Mr George Thorne)"',

'Roth, Miss. Sarah A',
 'Rothschild, Mr. Martin',
 'Rowe, Mr. Alfred G',
 'Ryan, Mr. Edward',
 'Ryerson, Master. John Borie',
 'Ryerson, Mr. Arthur Larned',
 'Ryerson, Mrs. Arthur Larned (Emily Maria Borie)',
 'Saade, Mr. Jean Nassr',
 'Sadowitz, Mr. Harry',
 'Saether, Mr. Simon Sivertsen',
 'Sage, Master. William Henry',
 'Sage, Miss. Ada',
 'Sage, Mr. John George',
 'Sage, Mrs. John (Annie Bullen)',
 'Salander, Mr. Karl Johan',
 'Salomon, Mr. Abraham L',
 'Samaan, Mr. Elias',
 'Samaan, Mr. Hanna',
 'Sandstrom, Miss. Beatrice Irene',
 'Sap, Mr. Julius',
 'Schabert, Mrs. Paul (Emma Mock)',
 'Schmidt, Mr. August',
 'Shaughnessy, Mr. Patrick',
 'Shine, Miss. Ellen Natalia',
 'Sincock, Miss. Maude',
 'Smith, Mr. Lucien Philip',
 'Smith, Mrs. Lucien Philip (Mary Eloise Hughes)',
 'Smyth, Miss. Julia',
 'Snyder, Mr. John Pillsbury',
 'Snyder, Mrs. John Pillsbury (Nelle Stevenson)',
 'Spector, Mr. Woolf',
 'Spedden, Master. Robert Douglas',
 'Spedden, Mr. Frederic Oakley',
 'Spencer, Mr. William Augustus',
 'Spinner, Mr. Henry John',
 'Stanton, Mr. Samuel Ward',
 'Stengel, Mr. Charles Emil Henry',
 'Stengel, Mrs. Charles Emil Henry (Annie May Morris)',
 'Stokes, Mr. Philip Joseph',
 'Storey, Mr. Thomas',
 'Straus, Mr. Isidor',
 'Straus, Mrs. Isidor (Rosalie Ida Blun)',
 'Strilic, Mr. Ivan',
 'Svensson, Mr. Johan Cervin',
 'Swane, Mr. George',
 'Sweet, Mr. George Frederick',
 'Tenglin, Mr. Gunnar Isidor',

'Thomas, Mr. Charles P',
 'Thomas, Mr. John',
 'Thomas, Mr. Tannous',
 'Thomas, Mrs. Alexander (Thamine Thelma)""',
 'Thomson, Mr. Alexander Morrison',
 'Torfa, Mr. Assad',
 'Touma, Master. Georges Youssef',
 'Touma, Miss. Maria Youssef',
 'Tucker, Mr. Gilbert Milligan Jr',
 'Vander Planke, Mr. Julius',
 'Vartanian, Mr. David',
 'Veal, Mr. James',
 'Vendel, Mr. Olof Edvin',
 'Walcroft, Miss. Nellie',
 'Ware, Mr. Frederick',
 'Ware, Mr. John James',
 'Ware, Mr. William Jeffery',
 'Ware, Mrs. John James (Florence Louise Long)',
 'Warren, Mr. Charles William',
 'Warren, Mr. Frank Manley',
 'Watt, Miss. Bertha J',
 'Weisz, Mr. Leopold',
 'Wells, Master. Ralph Lester',
 'Wells, Mrs. Arthur Henry (Addie" Dart Trevaskis)""',
 'Wenzel, Mr. Linhart',
 'West, Miss. Barbara J',
 'Whabee, Mrs. George Joseph (Shawneene Abi-Saab)',
 'Wheeler, Mr. Edwin Frederick""',
 'White, Mrs. John Stuart (Ella Holmes)',
 'Wick, Mr. George Dennick',
 'Widener, Mr. George Dunton',
 'Widener, Mrs. George Dunton (Eleanor Elkins)',
 'Wiklund, Mr. Karl Johan',
 'Wilkes, Mrs. James (Ellen Needs)',
 'Willard, Miss. Constance',
 'Willer, Mr. Aaron (Abi Weller)""',
 'Williams, Mr. Richard Norris II',
 'Wilson, Miss. Helen Alice',
 'Wirz, Mr. Albert',
 'Wittevrongel, Mr. Camille',
 'Wright, Miss. Marion',
 'Zakarian, Mr. Mapriededer',
 'Zakarian, Mr. Ortin',
 'de Brito, Mr. Jose Joaquim',
 'de Messemaeker, Mr. Guillaume Joseph',
 'del Carlo, Mrs. Sebastiano (Argenia Genovesi)',
 'van Billiard, Master. James William',

```
'van Billiard, Master. Walter John']
```

```
[80]: sorted(titanic['Name'])[5:10:2]
```

```
[80]: ['Aks, Master. Philip Frank',  
      'Allison, Mr. Hudson Joshua Creighton',  
      'Andersson, Miss. Ida Augusta Margareta']
```

```
[81]: titanic['Name'].describe()
```

```
[81]: count                418  
      unique                418  
      top      Shaughnessy, Mr. Patrick  
      freq                        1  
      Name: Name, dtype: object
```

```
[82]: titanic['Ticket'][4:9]
```

```
[82]: 4      3101298  
      5         7538  
      6      330972  
      7      248738  
      8         2657  
      Name: Ticket, dtype: object
```

```
[83]: titanic[['Ticket']][4:9]
```

```
[83]:      Ticket  
      4  3101298  
      5     7538  
      6  330972  
      7  248738  
      8     2657
```

```
[84]: # New column/ overwrite on the existing column
```

```
titanic['Test']=0  
titanic.head(5)
```

```
[84]:
```

	PassengerId	Pclass	Name	Sex	\
0	892	3	Kelly, Mr. James	male	
1	893	3	Wilkes, Mrs. James (Ellen Needs)	female	
2	894	2	Myles, Mr. Thomas Francis	male	
3	895	3	Wirz, Mr. Albert	male	
4	896	3	Hirvonen, Mrs. Alexander (Helga E Lindqvist)	female	

	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked	Test
0	34.5	0	0	330911	7.8292	NaN	Q	0
1	47.0	1	0	363272	7.0000	NaN	S	0
2	62.0	0	0	240276	9.6875	NaN	Q	0
3	27.0	0	0	315154	8.6625	NaN	S	0
4	22.0	1	1	3101298	12.2875	NaN	S	0

```
[85]: titanic['Name'][2:4]
```

```
[85]: 2    Myles, Mr. Thomas Francis
      3           Wirz, Mr. Albert
      Name: Name, dtype: object
```

```
[86]: d = titanic['Pclass'].unique()
      d
```

```
[86]: array([3, 2, 1])
```

```
[87]: #Renaming the Pclass values
      new_class = pd.Categorical(titanic['Pclass'])
      new_class = new_class.rename_categories(['c','b','a'])
      titanic['Pclass'] =new_class
```

```
[88]: titanic['Pclass'].head(5)
```

```
[88]: 0    a
      1    a
      2    b
      3    a
      4    a
      Name: Pclass, dtype: category
      Categories (3, object): [c, b, a]
```

```
[89]: # Creating new column using first character of cabin
      char_cabin = titanic['Cabin'].astype(str)
      char_cabin.head(5)
```

```
[89]: 0    nan
      1    nan
      2    nan
      3    nan
      4    nan
      Name: Cabin, dtype: object
```

```
[90]: new_cabin = [Cabin[0] for Cabin in char_cabin]
      new_cabin = pd.Categorical(new_cabin)
```

```
[91]: new_cabin
```

```
[91]: [n, n, n, n, n, ..., n, C, n, n, n]
      Length: 418
      Categories (8, object): [A, B, C, D, E, F, G, n]
```

```
[92]: titanic['cabin1']= new_cabin
      titanic.head()
```

```
[92]: PassengerId Pclass                                Name    Sex \
0         892      a                                Kelly, Mr. James  male
1         893      a      Wilkes, Mrs. James (Ellen Needs)  female
2         894      b                                Myles, Mr. Thomas Francis  male
```

3	895	a		Wirz, Mr. Albert	male
4	896	a	Hirvonen, Mrs. Alexander (Helga E Lindqvist)	female	

	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked	Test	cabin1
0	34.5	0	0	330911	7.8292	NaN	Q	0	n
1	47.0	1	0	363272	7.0000	NaN	S	0	n
2	62.0	0	0	240276	9.6875	NaN	Q	0	n
3	27.0	0	0	315154	8.6625	NaN	S	0	n
4	22.0	1	1	3101298	12.2875	NaN	S	0	n

```
[110]: # Determining null values
```

```
titanic['Cabin'].isnull().head(5)
```

```
[110]: 0    True
      1    True
      2    True
      3    True
      4    True
      Name: Cabin, dtype: bool
```

```
[94]: import numpy as np
```

```
miss = np.where(titanic['Age'].isnull()==True)
miss
```

```
[94]: (array([ 10,  22,  29,  33,  36,  39,  41,  47,  54,  58,  65,  76,  83,
            84,  85,  88,  91,  93, 102, 107, 108, 111, 116, 121, 124, 127,
            132, 133, 146, 148, 151, 160, 163, 168, 170, 173, 183, 188, 191,
            199, 200, 205, 211, 216, 219, 225, 227, 233, 243, 244, 249, 255,
            256, 265, 266, 267, 268, 271, 273, 274, 282, 286, 288, 289, 290,
            292, 297, 301, 304, 312, 332, 339, 342, 344, 357, 358, 365, 366,
            380, 382, 384, 408, 410, 413, 416, 417]),)
```

```
[95]: len(miss)
```

```
[95]: 1
```

```
[96]: # Locating the exact array number
```

```
np.where(titanic['Fare']==max(titanic['Fare']))
```

```
[96]: (array([343]),)
```

```
[97]: (titanic['Fare'] == max(titanic['Fare'])).head()
```

```
[97]: 0    False
      1    False
      2    False
      3    False
      4    False
      Name: Fare, dtype: bool
```

```
[98]: # Displayigthe particular row

titanic.loc[titanic['Fare']==max(titanic['Fare'])]
```

```
[98]: PassengerId Pclass                                Name \
343          1235          c  Cardeza, Mrs. James Warburton Martinez (Charlo...

      Sex  Age  SibSp  Parch  Ticket      Fare      Cabin Embarked \
343  female  58.0      0      1  PC 17755  512.3292  B51 B53 B55      C

      Test cabin1
343      0      B
```

```
[99]: titanic.iloc[np.where(titanic['Fare']==max(titanic['Fare']))]
```

```
[99]: PassengerId Pclass                                Name \
343          1235          c  Cardeza, Mrs. James Warburton Martinez (Charlo...

      Sex  Age  SibSp  Parch  Ticket      Fare      Cabin Embarked \
343  female  58.0      0      1  PC 17755  512.3292  B51 B53 B55      C

      Test cabin1
343      0      B
```

```
[100]: titanic['Family'] = titanic['SibSp']+titanic['Parch']
titanic['Family'].head(5)
```

```
[100]: 0    0
1     1
2     0
3     0
4     2
Name: Family, dtype: int64
```

```
[101]: most = np.where(titanic['Family']==max(titanic['Family']))
most
```

```
[101]: (array([188, 342, 360, 365]),)
```

```
[102]: titanic.loc[np.where(titanic['Family']==max(titanic['Family']))]
```

```
[102]: PassengerId Pclass                                Name      Sex  Age  SibSp \
188          1080          a                Sage, Miss. Ada  female  NaN      8
342          1234          a                Sage, Mr. John George  male  NaN      1
360          1252          a      Sage, Master. William Henry  male  14.5      8
365          1257          a  Sage, Mrs. John (Annie Bullen)  female  NaN      1

      Parch  Ticket  Fare Cabin Embarked  Test cabin1  Family
188      2  CA. 2343  69.55  NaN      S      0      n      10
342      9  CA. 2343  69.55  NaN      S      0      n      10
360      2  CA. 2343  69.55  NaN      S      0      n      10
365      9  CA. 2343  69.55  NaN      S      0      n      10
```



```
[103]: # Seperating first and last name
```

```
titanic['Name'].str.split(" ").head(5)
```

```
[103]: 0          [Kelly,, Mr., James]
      1      [Wilkes,, Mrs., James, (Ellen, Needs)]
      2          [Myles,, Mr., Thomas, Francis]
      3          [Wirz,, Mr., Albert]
      4  [Hirvonen,, Mrs., Alexander, (Helga, E, Lindqv...
      Name: Name, dtype: object
```

```
[104]: new = titanic["Name"].str.split(" ", n = 0).head(5)
      new
```

```
[104]: 0          [Kelly,, Mr., James]
      1      [Wilkes,, Mrs., James, (Ellen, Needs)]
      2          [Myles,, Mr., Thomas, Francis]
      3          [Wirz,, Mr., Albert]
      4  [Hirvonen,, Mrs., Alexander, (Helga, E, Lindqv...
      Name: Name, dtype: object
```

```
[105]: new = titanic["Name"].str.split(", ", n = 1,expand=True).head(5)
      new
```

```
[105]:      0          1
      0  Kelly          Mr. James
      1  Wilkes      Mrs. James (Ellen Needs)
      2  Myles          Mr. Thomas Francis
      3  Wirz          Mr. Albert
      4  Hirvonen  Mrs. Alexander (Helga E Lindqvist)
```

```
[106]: #new = titanic["Name"].str.split(" ", n = 1, expand = True).head(5)
      #new
```

```
[107]: titanic['First Name']=new[0]
      titanic['First Name'].head(5)
```

```
[107]: 0      Kelly
      1      Wilkes
      2      Myles
      3      Wirz
      4  Hirvonen
      Name: First Name, dtype: object
```

```
[108]: titanic['Second Name']=new[1]
      titanic['Second Name'].head(5)
```

```
[108]: 0          Mr. James
      1  Mrs. James (Ellen Needs)
      2      Mr. Thomas Francis
      3          Mr. Albert
      4  Mrs. Alexander (Helga E Lindqvist)
```

Name: Second Name, dtype: object

```
[109]: titanic.head(5)
```

```
[109]: PassengerId Pclass                                Name      Sex \
0          892      a                                Kelly, Mr. James  male
1          893      a          Wilkes, Mrs. James (Ellen Needs)  female
2          894      b              Myles, Mr. Thomas Francis  male
3          895      a              Wirz, Mr. Albert  male
4          896      a  Hirvonen, Mrs. Alexander (Helga E Lindqvist)  female
```

```
      Age  SibSp  Parch  Ticket   Fare Cabin Embarked  Test cabin1  Family \
0  34.5     0     0  330911   7.8292   NaN      Q      0      n      0
1  47.0     1     0  363272   7.0000   NaN      S      0      n      1
2  62.0     0     0  240276   9.6875   NaN      Q      0      n      0
3  27.0     0     0  315154   8.6625   NaN      S      0      n      0
4  22.0     1     1  3101298  12.2875   NaN      S      0      n      2
```

```
      First Name                                Second Name
0      Kelly                                Mr. James
1      Wilkes          Mrs. James (Ellen Needs)
2      Myles              Mr. Thomas Francis
3      Wirz              Mr. Albert
4  Hirvonen  Mrs. Alexander (Helga E Lindqvist)
```

```
[ ]:
```