

```
import pandas as pd
```

```
df=pd.read_csv(r"C:\Users\USER\OneDrive\Documents\pandasApp\ecommerce  
purchases\Ecommerce Purchases.zip")
```

```
print (df)
```

	Address	Lot	AM or
PM \			
0	16629 Pace Camp Apt. 448\nAlexisborough, NE 77...	46	in
PM			
1	9374 Jasmine Spurs Suite 508\nSouth John, TN 8...	28	rn
PM			
2	Unit 0065 Box 5052\nDPO AP 27450	94	vE
PM			
3	7780 Julia Fords\nNew Stacy, WA 45798	36	vm
PM			
4	23012 Munoz Drive Suite 337\nNew Cynthia, TX 5...	20	IE
AM			
...
.			
9995	966 Castaneda Locks\nWest Juliafurt, CO 96415	92	XI
PM			
9996	832 Curtis Dam Suite 785\nNorth Edwardburgh, T...	41	JY
AM			
9997	Unit 4434 Box 6343\nDPO AE 28026-0283	74	Zh
AM			
9998	0096 English Rest\nRoystad, IA 12457	74	cL
PM			
9999	40674 Barrett Stravenue\nGrimesville, WI 79682	64	Hr
AM			
	Browser Info \		
0	Opera/9.56.(X11; Linux x86_64; sl-SI) Presto/2...		
1	Opera/8.93.(Windows 98; Win 9x 4.90; en-US) Pr...		
2	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...		
3	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_8_0 ...		
4	Opera/9.58.(X11; Linux x86_64; it-IT) Presto/2...		
...	...		
9995	Mozilla/5.0 (Windows NT 5.1) AppleWebKit/5352 ...		
9996	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...		
9997	Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_7...		
9998	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_8_8;...		
9999	Mozilla/5.0 (X11; Linux i686; rv:1.9.5.20) Gec...		
	Company	Credit Card	CC Exp Date \
0	Martinez-Herman	6011929061123406	02/20
1	Fletcher, Richards and Whitaker	3337758169645356	11/18
2	Simpson, Williams and Pham	675957666125	08/19
3	Williams, Marshall and Buchanan	6011578504430710	02/24

4	Brown, Watson and Andrews	6011456623207998	10/25
...
9995	Randall-Sloan	342945015358701	03/22
9996	Hale, Collins and Wilson	210033169205009	07/25
9997	Anderson Ltd	6011539787356311	05/21
9998	Cook Inc	180003348082930	11/17
9999	Greene Inc	4139972901927273	02/19
	CC Security Code	CC Provider \	
0	900	JCB 16 digit	
1	561	Mastercard	
2	699	JCB 16 digit	
3	384	Discover	
4	678	Diners Club / Carte Blanche	
...	
9995	838	JCB 15 digit	
9996	207	JCB 16 digit	
9997	1	VISA 16 digit	
9998	987	American Express	
9999	302	JCB 15 digit	
	Email		
Job \			
0	pdunlap@yahoo.com	Scientist, product/process	
development			
1	anthony41@reed.com	Drilling	
engineer			
2	amymiller@morales-harrison.com	Customer service	
manager			
3	brent16@olson-robinson.info	Drilling	
engineer			
4	christopherwright@gmail.com	Fine	
artist			
...	...		
...			
9995	iscott@wade-garner.com		
Printmaker			
9996	mary85@hotmail.com	Energy	
engineer			
9997	tyler16@gmail.com	Veterinary	
surgeon			
9998	elizabethmoore@reid.net	Local government	
officer			
9999	rachelford@vaughn.com	Embryologist,	
clinical			
	IP Address	Language	Purchase Price
0	149.146.147.205	el	98.14
1	15.160.41.51	fr	70.73
2	132.207.160.22	de	0.95

3	30.250.74.19	es	78.04
4	24.140.33.94	es	77.82
...
9995	29.73.197.114	it	82.21
9996	121.133.168.51	pt	25.63
9997	156.210.0.254	el	83.98
9998	55.78.26.143	es	38.84
9999	176.119.198.199	el	67.59

[10000 rows x 14 columns]

#DISPLAY TOP 10 ROWS

df.head(10)

	Address	Lot	AM	or
PM \				
0	16629 Pace Camp Apt. 448\nAlexisborough, NE 77...	46	in	PM
1	9374 Jasmine Spurs Suite 508\nSouth John, TN 8...	28	rn	PM
2	Unit 0065 Box 5052\nDPO AP 27450	94	vE	PM
3	7780 Julia Fords\nNew Stacy, WA 45798	36	vm	PM
4	23012 Munoz Drive Suite 337\nNew Cynthia, TX 5...	20	IE	AM
5	7502 Powell Mission Apt. 768\nTravisland, VA 3...	21	XT	PM
6	93971 Conway Causeway\nAndersonburgh, AZ 75107	96	Xt	AM
7	260 Rachel Plains Suite 366\nCastroberg, WV 24...	96	pG	PM
8	2129 Dylan Burg\nNew Michelle, ME 28650	45	JN	PM
9	3795 Dawson Extensions\nLake Tinafort, ID 88739	15	Ug	AM

	Browser Info	\
0	Opera/9.56.(X11; Linux x86_64; sl-SI) Presto/2...	
1	Opera/8.93.(Windows 98; Win 9x 4.90; en-US) Pr...	
2	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...	
3	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_8_0 ...	
4	Opera/9.58.(X11; Linux x86_64; it-IT) Presto/2...	
5	Mozilla/5.0 (Macintosh; U; PPC Mac OS X 10_8_5...	
6	Mozilla/5.0 (compatible; MSIE 7.0; Windows NT ...	
7	Mozilla/5.0 (X11; Linux i686) AppleWebKit/5350...	
8	Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_7...	
9	Mozilla/5.0 (X11; Linux i686; rv:1.9.7.20) Gec...	

Company	Credit Card	CC	Exp Date	\
---------	-------------	----	----------	---

0	Martinez-Herman	6011929061123406	02/20
1	Fletcher, Richards and Whitaker	3337758169645356	11/18
2	Simpson, Williams and Pham	675957666125	08/19
3	Williams, Marshall and Buchanan	6011578504430710	02/24
4	Brown, Watson and Andrews	6011456623207998	10/25
5	Silva-Anderson	30246185196287	07/25
6	Gibson and Sons	6011398782655569	07/24
7	Marshall-Collins	561252141909	06/25
8	Galloway and Sons	180041795790001	04/24
9	Rivera, Buchanan and Ramirez	4396283918371	01/17

	CC Security Code	CC Provider \
0	900	JCB 16 digit
1	561	Mastercard
2	699	JCB 16 digit
3	384	Discover
4	678	Diners Club / Carte Blanche
5	7169	Discover
6	714	VISA 16 digit
7	256	VISA 13 digit
8	899	JCB 16 digit
9	931	American Express

	Email	
Job \		
0	pdunlap@yahoo.com	Scientist, product/process development
1	anthony41@reed.com	Drilling engineer
2	amymiller@morales-harrison.com	Customer service manager
3	brentl6@olson-robinson.info	Drilling engineer
4	christopherwright@gmail.com	Fine artist
5	ynguyen@gmail.com	Fish farm manager
6	olivia04@yahoo.com	Dancer
7	phillip48@parks.info	Event organiser
8	kdavis@rasmussen.com	Financial manager
9	qcoleman@hunt-huerta.com	Forensic scientist

	IP Address	Language	Purchase Price
0	149.146.147.205	el	98.14
1	15.160.41.51	fr	70.73
2	132.207.160.22	de	0.95

3	30.250.74.19	es	78.04
4	24.140.33.94	es	77.82
5	55.96.152.147	ru	25.15
6	127.252.144.18	de	88.56
7	224.247.97.150	pt	44.25
8	146.234.201.229	ru	59.54
9	236.198.199.8	zh	95.63

#CHECK LAST 10 ROWS
df.tail(10)

	Address	Lot	AM or
PM \			
9990	75731 Molly Springs\nWest Danielle, VT 96934-5102	93	ty
PM			
9991	PSC 8165, Box 8498\nAPO AP 60327-0346	50	dA
AM			
9992	885 Allen Mountains Apt. 230\nWallhaven, LA 16995	40	vH
PM			
9993	7555 Larson Locks Suite 229\nEllisburgh, MA 34...	72	tg
PM			
9994	6276 Rojas Hollow\nLake Louis, WY 56410-7837	93	Ex
PM			
9995	966 Castaneda Locks\nWest Juliafurt, CO 96415	92	XI
PM			
9996	832 Curtis Dam Suite 785\nNorth Edwardburgh, T...	41	JY
AM			
9997	Unit 4434 Box 6343\nDPO AE 28026-0283	74	Zh
AM			
9998	0096 English Rest\nRoystad, IA 12457	74	cL
PM			
9999	40674 Barrett Stravenue\nGrimesville, WI 79682	64	Hr
AM			

	Browser Info	\
9990	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_7_4;...	
9991	Mozilla/5.0 (compatible; MSIE 8.0; Windows NT ...	
9992	Mozilla/5.0 (Macintosh; PPC Mac OS X 10_6_5) A...	
9993	Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_8...	
9994	Opera/9.68.(X11; Linux x86_64; sl-SI) Presto/2...	
9995	Mozilla/5.0 (Windows NT 5.1) AppleWebKit/5352 ...	
9996	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...	
9997	Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_7...	
9998	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_8_8;...	
9999	Mozilla/5.0 (X11; Linux i686; rv:1.9.5.20) Gec...	

	Company	Credit Card	CC Exp Date	\
9990	Pace, Vazquez and Richards	869968197049750	04/24	
9991	Snyder Inc	4221582137197481	02/24	
9992	Wells Ltd	4664825258997302	10/20	

9993	Colon and Sons	30025560104631	10/25
9994	Ritter-Smith	3112186784121077	01/25
9995	Randall-Sloan	342945015358701	03/22
9996	Hale, Collins and Wilson	210033169205009	07/25
9997	Anderson Ltd	6011539787356311	05/21
9998	Cook Inc	180003348082930	11/17
9999	Greene Inc	4139972901927273	02/19

	CC Security Code	CC Provider	Email
9990	877	JCB 15 digit	andersonmichael@sherman.biz
9991	969	Voyager	kking@wise-liu.com
9992	431	Discover	bberry@wright.net
9993	629	Maestro	chelseawilliams@lopez.biz
9994	1823	Maestro	iroberts@gmail.com
9995	838	JCB 15 digit	iscott@wade-garner.com
9996	207	JCB 16 digit	mary85@hotmail.com
9997	1	VISA 16 digit	tyler16@gmail.com
9998	987	American Express	elizabethmoore@reid.net
9999	302	JCB 15 digit	rachelford@vaughn.com

	Job	IP Address	Language	Purchase
Price				
9990	Early years teacher	54.170.3.185	ru	18.35
9991	IT sales professional	254.25.31.156	el	25.93
9992	Set designer	174.173.51.32	de	67.96
9993	Designer, exhibition/display	177.46.82.128	el	65.61
9994	Education officer, museum	242.44.112.18	zh	31.85
9995	Printmaker	29.73.197.114	it	82.21
9996	Energy engineer	121.133.168.51	pt	25.63
9997	Veterinary surgeon	156.210.0.254	el	83.98
9998	Local government officer	55.78.26.143	es	

```
38.84
9999      Embryologist, clinical  176.119.198.199      el
67.59
```

```
#check data types of each column
```

```
df.dtypes
```

```
Address      object
Lot           object
AM or PM      object
Browser Info  object
Company       object
Credit Card   int64
CC Exp Date   object
CC Security Code  int64
CC Provider   object
Email         object
Job           object
IP Address    object
Language      object
Purchase Price float64
dtype: object
```

```
#check for null values
```

```
df.isnull().sum()
```

```
Address      0
Lot           0
AM or PM      0
Browser Info  0
Company       0
Credit Card   0
CC Exp Date   0
CC Security Code  0
CC Provider   0
Email         0
Job           0
IP Address    0
Language      0
Purchase Price 0
dtype: int64
```

```
#how many rows and columns in the data set
```

```
df.shape
```

```
(10000, 14)
```

```
print ('numberof rows',df.shape[0])
print ('number of columns',df.shape[1])
```

```
numberof rows 10000
number of columns 14
```

```
df.columns
```

```
Index(['Address', 'Lot', 'AM or PM', 'Browser Info', 'Company',
      'Credit Card',
      'CC Exp Date', 'CC Security Code', 'CC Provider', 'Email',
      'Job',
      'IP Address', 'Language', 'Purchase Price'],
      dtype='object')
```

```
#columns
```

```
len(df.columns)
```

```
14
```

```
#rows
```

```
len(df)
```

```
10000
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
```

```
RangeIndex: 10000 entries, 0 to 9999
```

```
Data columns (total 14 columns):
```

#	Column	Non-Null Count	Dtype
0	Address	10000 non-null	object
1	Lot	10000 non-null	object
2	AM or PM	10000 non-null	object
3	Browser Info	10000 non-null	object
4	Company	10000 non-null	object
5	Credit Card	10000 non-null	int64
6	CC Exp Date	10000 non-null	object
7	CC Security Code	10000 non-null	int64
8	CC Provider	10000 non-null	object
9	Email	10000 non-null	object
10	Job	10000 non-null	object
11	IP Address	10000 non-null	object
12	Language	10000 non-null	object
13	Purchase Price	10000 non-null	float64

```
dtypes: float64(1), int64(2), object(11)
```

```
memory usage: 1.1+ MB
```

```
df['Purchase Price']
```

```
0    98.14
1    70.73
2     0.95
```



```
3      78.04
4      77.82
...
9995   82.21
9996   25.63
9997   83.98
9998   38.84
9999   67.59
Name: Purchase Price, Length: 10000, dtype: float64
```

```
#highest and lowest purchase price
```

```
df['Purchase Price'].max()
```

```
99.99
```

```
#lowest price
```

```
df['Purchase Price'].min()
```

```
0.0
```

```
#average purchase price
```

```
df['Purchase Price'].mean()
```

```
50.347302
```

```
#how many people have french (fr) as their language
```

```
df['Language']
```

```
0      el
1      fr
2      de
3      es
4      es
...
9995   it
9996   pt
9997   el
9998   es
9999   el
```

```
Name: Language, Length: 10000, dtype: object
```

```
df['Language']=='fr'
```

```
0      False
1       True
2      False
3      False
4      False
...
9995   False
9996   False
```

```
9997      False
9998      False
9999      False
Name: Language, Length: 10000, dtype: bool
```

```
#job title that contain engineer
```

```
df['Job']
```

```
0      Scientist, product/process development
1                Drilling engineer
2      Customer service manager
3                Drilling engineer
4                Fine artist
...
9995                Printmaker
9996      Energy engineer
9997      Veterinary surgeon
9998      Local government officer
9999      Embryologist, clinical
Name: Job, Length: 10000, dtype: object
```

```
df['Job'].str.contains('engineer')
```

```
0      False
1       True
2      False
3       True
4      False
...
9995      False
9996       True
9997      False
9998      False
9999      False
Name: Job, Length: 10000, dtype: bool
```

```
df[df['Job'].str.contains('engineer')]
```

	Address	Lot	AM or
PM \			
1	9374 Jasmine Spurs Suite 508\nSouth John, TN 8...	28	rn
PM			
3	7780 Julia Fords\nNew Stacy, WA 45798	36	vm
PM			
50	41159 Michael Centers\nAdamsfort, RI 37108-6674	46	Ce
PM			
103	480 Ronald Cape\nJohnville, MA 53644	11	wg
AM			
193	1010 Mahoney Mills Suite 486\nWest Daniellevie...	70	Fd
AM			

```

...
.
9934      52276 Smith Cliffs\nLake Vanessaview, AL 91791  40 nG
AM
9948      95544 Johnson Isle Suite 939\nMichaelberg, RI ...  91 bW
AM
9970      0060 Keith Stream\nWestport, CO 47097  11 nt
PM
9977      02182 Keith Expressway\nEast Shannon, CT 20578...  34 RL
AM
9996      832 Curtis Dam Suite 785\nNorth Edwardburgh, T...  41 JY
AM

```

```

Browser Info \
1      Opera/8.93.(Windows 98; Win 9x 4.90; en-US) Pr...
3      Mozilla/5.0 (Macintosh; Intel Mac OS X 10_8_0 ...
50     Mozilla/5.0 (Windows 98; Win 9x 4.90; sl-SI; r...
103    Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_5...
193    Mozilla/5.0 (X11; Linux i686; rv:1.9.5.20) Gec...
...
9934    Opera/9.62.(Windows NT 5.0; sl-SI) Presto/2.9....
9948    Opera/8.36.(X11; Linux x86_64; sl-SI) Presto/2...
9970    Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_8...
9977    Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...
9996    Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...

```

```

Company      Credit Card CC Exp Date \
1      Fletcher, Richards and Whitaker 3337758169645356 11/18
3      Williams, Marshall and Buchanan 6011578504430710 02/24
50     Wright, Williams and Mendez 4008586485908075 05/19
103    Brown Inc 30276609779632 03/22
193    Wilson-Dennis 30359256148796 02/22
...
9934    Clay LLC 5148775191773208 05/23
9948    Fox-Peterson 4762924304307 03/17
9970    Carpenter, Good and Hart 6011485664704662 07/19
9977    Deleon, Jacobson and Benton 4186094003664688 06/21
9996    Hale, Collins and Wilson 210033169205009 07/25

```

```

CC Security Code  CC Provider
Email \
1      561      Mastercard      anthony41@reed.com
3      384      Discover      brent16@olson-robinson.info
50     945      JCB 16 digit      susanvalentine@obrien.org
103    676      Discover      wtownsend@jackson-johnson.biz
193    62      JCB 16 digit      stacy72@cruz.com

```

...
9934	583	VISA 16 digit	popejames@yahoo.com
9948	567	Mastercard	haleybenjamin@gmail.com
9970	543	Discover	rangelbrian@hotmail.com
9977	397	JCB 16 digit	daltoncarter@yahoo.com
9996	207	JCB 16 digit	mary85@hotmail.com

	Job	IP Address	Language	Purchase
Price				
1	Drilling engineer	15.160.41.51	fr	
70.73				
3	Drilling engineer	30.250.74.19	es	
78.04				
50	Mechanical engineer	213.203.143.215	de	
36.85				
103	Technical sales engineer	119.178.136.56	it	
51.37				
193	Energy engineer	189.183.41.220	pt	
96.79				
...	
...				
9934	Consulting civil engineer	130.63.250.128	el	
99.75				
9948	Structural engineer	120.36.140.58	en	
71.89				
9970	Electrical engineer	242.8.85.205	en	
17.76				
9977	Biomedical engineer	146.238.118.2	fr	
94.93				
9996	Energy engineer	121.133.168.51	pt	
25.63				

[531 rows x 14 columns]

```
len (df[df['Job'].str.contains('engineer',case =False)])
```

984

#find email of the person with the following ip address;132.207.160.22
df.columns

```
Index(['Address', 'Lot', 'AM or PM', 'Browser Info', 'Company',  
      'Credit Card',  
      'CC Exp Date', 'CC Security Code', 'CC Provider', 'Email',
```

```
'Job',
      'IP Address', 'Language', 'Purchase Price'],
      dtype='object')

df[df['IP Address']=='132.207.160.22']['Email']

2      amymiller@morales-harrison.com
Name: Email, dtype: object

#how many people have a mastercard as the credit card provider and
made a purchase above 50
df.columns
```

```
Index(['Address', 'Lot', 'AM or PM', 'Browser Info', 'Company',
      'Credit Card',
      'CC Exp Date', 'CC Security Code', 'CC Provider', 'Email',
      'Job',
      'IP Address', 'Language', 'Purchase Price'],
      dtype='object')
```

```
df[(df['CC Provider']=='Mastercard') & (df['Purchase Price']>50)]
```

	Address	Lot	AM or
PM \			
1	9374 Jasmine Spurs Suite 508\nSouth John, TN 8...	28	rn
PM			
18	461 Christopher Square\nWest Michaelchester, C...	17	SB
PM			
31	USNS Alvarado\nFP0 AA 27052-1231	26	Lh
PM			
35	93392 Webb Gardens Apt. 220\nLaurabury, AR 999...	37	om
AM			
90	431 Bowen Lights\nFergusonborough, MH 01362	31	tG
AM			
...
.			
9941	43757 Brown Lodge\nValerieberg, PR 88518	68	DG
AM			
9948	95544 Johnson Isle Suite 939\nMichaelberg, RI ...	91	bW
AM			
9954	051 Samantha Wells Apt. 328\nScottborough, OR ...	11	vG
AM			
9981	087 Larson Roads Apt. 587\nRicestad, WI 98077-...	95	Kw
AM			
9987	2754 Klein Mission\nJohnsonview, PA 64925-9624	65	Fg
PM			
	Browser Info \		
1	Opera/8.93.(Windows 98; Win 9x 4.90; en-US) Pr...		
18	Mozilla/5.0 (X11; Linux i686; rv:1.9.6.20) Gec...		
31	Opera/8.84.(X11; Linux i686; sl-SI) Presto/2.9...		

```

35    Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_7...
90    Mozilla/5.0 (Windows NT 5.2; it-IT; rv:1.9.1.2...
...
9941  Mozilla/5.0 (compatible; MSIE 5.0; Windows NT ...
9948  Opera/8.36.(X11; Linux x86_64; sl-SI) Presto/2...
9954  Mozilla/5.0 (Macintosh; U; PPC Mac OS X 10_8_2...
9981  Opera/9.63.(Windows NT 5.01; en-US) Presto/2.9...
9987  Opera/9.26.(Windows CE; sl-SI) Presto/2.9.188 ...

```

	Company	Credit Card	CC Exp Date	\
1	Fletcher, Richards and Whitaker	3337758169645356	11/18	
18	Beard, Abbott and Pena	6011350184276270	12/22	
31	Nicholson Group	4614997834548	03/22	
35	Mora Ltd	6011049630969815	09/16	
90	Copeland-Lee	639032576097	06/18	
...	
9941	Jones, Williams and Dunn	6011508474487291	04/26	
9948	Fox-Peterson	4762924304307	03/17	
9954	Mendoza, Zimmerman and Reilly	30232295374907	05/21	
9981	Ortiz, Schultz and Adams	4690863684605	01/19	
9987	Curtis LLC	180027305702263	12/24	

	CC Security Code	CC Provider	Email	\
1	561	Mastercard	anthony41@reed.com	
18	767	Mastercard	hannah63@yahoo.com	
31	909	Mastercard	ashley12@hotmail.com	
35	367	Mastercard	hgonzalez@mcdowell.com	
90	868	Mastercard	nrogers@brown.com	
...	
9941	906	Mastercard	christian55@gmail.com	
9948	567	Mastercard	haleybenjamin@gmail.com	
9954	762	Mastercard	brownamy@perkins.com	
9981	695	Mastercard	laurenbennett@richards.com	
9987	865	Mastercard	denisehamilton@novak.biz	

	Job	IP Address	Language
\			
1	Drilling engineer	15.160.41.51	fr
18	Photographer	73.250.176.201	el
31	Sales executive	94.176.142.201	en
35	Lecturer, further education	216.23.95.40	zh
90	Teacher, English as a foreign language	153.188.13.203	es
...
9941	Secondary school teacher	216.118.235.145	fr

9948	Structural engineer	120.36.140.58	en
9954	Presenter, broadcasting	61.97.84.101	it
9981	Environmental education officer	106.21.237.73	pt
9987	Primary school teacher	164.39.190.217	es

	Purchase Price
1	70.73
18	70.15
31	94.14
35	97.46
90	78.86
...	...
9941	60.03
9948	71.89
9954	87.15
9981	63.61
9987	60.83

[405 rows x 14 columns]

```
len (df[(df['CC Provider']=='Mastercard')& (df['Purchase Price']>50)])
```

405

*#find the email of the person with the credit card number
4664825258997302*

df.columns

```
Index(['Address', 'Lot', 'AM or PM', 'Browser Info', 'Company',
      'Credit Card',
      'CC Exp Date', 'CC Security Code', 'CC Provider', 'Email',
      'Job',
      'IP Address', 'Language', 'Purchase Price'],
      dtype='object')
```

```
df[df['Credit Card']==4664825258997302]['Email']
```

```
9992    bberry@wright.net
Name: Email, dtype: object
```

#how many people purchase during the AM and how many people purchase during the PM

df.columns

```
Index(['Address', 'Lot', 'AM or PM', 'Browser Info', 'Company',
      'Credit Card',
      'CC Exp Date', 'CC Security Code', 'CC Provider', 'Email',
```

```
'Job',  
      'IP Address', 'Language', 'Purchase Price'],  
      dtype='object')
```

```
df['AM or PM']
```

```
0      PM  
1      PM  
2      PM  
3      PM  
4      AM
```

```
..  
9995    PM  
9996    AM  
9997    AM  
9998    PM  
9999    AM
```

```
Name: AM or PM, Length: 10000, dtype: object
```

```
df['AM or PM'].value_counts()
```

```
AM or PM  
PM      5068  
AM      4932
```

```
Name: count, dtype: int64
```

```
#how many people have credit card that got expired in 2020
```

```
df.columns
```

```
Index(['Address', 'Lot', 'AM or PM', 'Browser Info', 'Company',  
      'Credit Card',  
      'CC Exp Date', 'CC Security Code', 'CC Provider', 'Email',  
      'Job',  
      'IP Address', 'Language', 'Purchase Price'],  
      dtype='object')
```

```
df['CC Exp Date']
```

```
0      02/20  
1      11/18  
2      08/19  
3      02/24  
4      10/25
```

```
..  
9995    03/22  
9996    07/25  
9997    05/21  
9998    11/17  
9999    02/19
```

```
Name: CC Exp Date, Length: 10000, dtype: object
```



```
df[df['CC Exp Date'].apply(lambda x:x[3:]=='20')]
```

	Address	Lot	AM or
PM \			
0	16629 Pace Camp Apt. 448\nAlexisborough, NE 77...	46	in
PM			
19	125 Hall Summit\nBoothton, IL 41721	99	CU
PM			
32	Unit 3628 Box 6778\nDPO AE 72362	39	Qm
PM			
36	9374 Skinner Common Apt. 254\nChristopherfort,...	80	Fq
PM			
38	9671 Riley Drives Apt. 746\nPort Davidtown, TN...	15	vj
AM			
...

9883	751 Petersen Groves\nLake Rebecca, NM 55875	61	tE
PM			
9901	908 Norman Burgs\nPhillipsberg, VT 92023-9956	90	Ng
PM			
9911	44320 Gray Centers Suite 325\nJenniferfurt, OK...	19	Bf
PM			
9957	73556 Chase Pine\nBrucemouth, MP 73473	25	rU
PM			
9992	885 Allen Mountains Apt. 230\nWallhaven, LA 16995	40	vH
PM			

	Browser Info	\
0	Opera/9.56.(X11; Linux x86_64; sl-SI) Presto/2...	
19	Mozilla/5.0 (compatible; MSIE 7.0; Windows NT ...	
32	Mozilla/5.0 (Windows 98; Win 9x 4.90) AppleWeb...	
36	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...	
38	Mozilla/5.0 (X11; Linux i686; rv:1.9.6.20) Gec...	
...	...	
9883	Mozilla/5.0 (Macintosh; U; PPC Mac OS X 10_8_7...	
9901	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...	
9911	Mozilla/5.0 (X11; Linux i686; rv:1.9.7.20) Gec...	
9957	Opera/9.49.(Windows 95; en-US) Presto/2.9.189 ...	
9992	Mozilla/5.0 (Macintosh; PPC Mac OS X 10_6_5) A...	

	Company	Credit Card	CC Exp Date	\
0	Martinez-Herman	6011929061123406	02/20	
19	Turner-Mckinney	676343504830	02/20	
32	Martinez-Wilson	4942281854569455	01/20	
36	Hanna-Grant	180042289507877	09/20	
38	Bryant, Hubbard and Gonzales	210094965373094	12/20	
...	
9883	Perez and Sons	4939814860063025	05/20	
9901	Hughes Inc	30148833294789	09/20	
9911	Jones-Gray	4058074716188	12/20	

9957	Martin, Clayton and Jarvis	3337737293232646	05/20
9992	Wells Ltd	4664825258997302	10/20

	CC Security Code	CC Provider \
0	900	JCB 16 digit
19	440	VISA 16 digit
32	8360	JCB 16 digit
36	912	VISA 16 digit
38	248	Voyager
...
9883	238	Mastercard
9901	483	Voyager
9911	921	Diners Club / Carte Blanche
9957	798	VISA 13 digit
9992	431	Discover

	Email	
Job \		
0	pdunlap@yahoo.com	Scientist, product/process development
19	ruiznicole@gmail.com	Designer, interior/spatial
32	shane21@atkinson.com	Civil Service fast streamer
36	saundersernest@walsh.com	Animal technologist
38	djennings@boyd-english.org	Music therapist
...	...	
...		
9883	lisa25@hotmail.com	Therapeutic radiographer
9901	james32@gmail.com	Meteorologist
9911	hensonlindsay@graves-fox.com	Optician, dispensing
9957	latashaochoa@gmail.com	Therapeutic radiographer
9992	bberry@wright.net	Set designer

	IP Address	Language	Purchase Price
0	149.146.147.205	el	98.14
19	25.105.209.214	fr	58.39
32	196.37.134.217	pt	56.63
36	85.134.58.250	zh	9.77
38	143.138.65.219	en	30.07
...
9883	215.85.159.70	pt	67.47
9901	250.66.85.29	en	57.25

9911	84.118.30.56	en	20.63
9957	239.219.241.162	ru	71.85
9992	174.173.51.32	de	67.96

[988 rows x 14 columns]

```
len (df[df['CC Exp Date'].apply(lambda x:x[3:]=='20']])
```

988

#top five most popular email providers

```
list=[]  
for email in df['Email']:  
    list.append( email.split('@')[1])
```

```
df['Email']
```

0	pdunlap@yahoo.com
1	anthony41@reed.com
2	amymiller@morales-harrison.com
3	brent16@olson-robinson.info
4	christopherwright@gmail.com
	...
9995	iscott@wade-garner.com
9996	mary85@hotmail.com
9997	tyler16@gmail.com
9998	elizabethmoore@reid.net
9999	rachelford@vaughn.com

Name: Email, Length: 10000, dtype: object