ECOMMERCE PURCHASES ANALYSIS USING PYTHON PANDAS

In [20]:
```
import pandas as pd
import csv
```

In [28]:
```
data= pd.read_csv(r'C:\Users\KIIT\Desktop\pandas project\Ecommerce Purchases')
data
```

Out[28]:

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	
0	16629 Pace Camp Apt. 448\nAlexisborough, NE 77...	46 in	PM	Opera/9.56.(X11; Linux x86_64; sl-SI) Presto/2...	Martinez-Herman	6011929061123406	02/20	900	JCB 16 digit	pdunlap@
1	9374 Jasmine Spurs Suite 508\nSouth John, TN 8...	28 rn	PM	Opera/8.93. (Windows 98; Win 9x 4.90; en-US) Pr...	Fletcher, Richards and Whitaker	3337758169645356	11/18	561	Mastercard	anthony41
2	Unit 0065 Box 5052\nDPO AP 27450	94 vE	PM	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...	Simpson, Williams and Pham	675957666125	08/19	699	JCB 16 digit	amymille h
3	7780 Julia Fords\nNew Stacy, WA 45798	36 vm	PM	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_8_0 ...	Williams, Marshall and Buchanan	6011578504430710	02/24	384	Discover	brent16@olson-r
4	23012 Munoz Drive Suite 337\nNew Cynthia, TX 5...	20 IE	AM	Opera/9.58.(X11; Linux x86_64; it-IT) Presto/2...	Brown, Watson and Andrews	6011456623207998	10/25	678	Diners Club / Carte Blanche	christopherwright@
...	...	...	...	...	...	...	...	...	...	
9995	966 Castaneda Locks\nWest Juliafurt, CO 96415	92 XI	PM	Mozilla/5.0 (Windows NT 5.1) AppleWebKit/5352 ...	Randall-Sloan	342945015358701	03/22	838	JCB 15 digit	iscott@wade-
9996	832 Curtis Dam Suite 785\nNorth Edwardburgh, T...	41 JY	AM	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...	Hale, Collins and Wilson	210033169205009	07/25	207	JCB 16 digit	mary85@h
9997	Unit 4434 Box 6343\nDPO AE 28026-0283	74 Zh	AM	Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_7...	Anderson Ltd	6011539787356311	05/21	1	VISA 16 digit	tyler16@

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	
9998	0096 English Rest\nRoystad, IA 12457	74 cL	PM	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_8_8;...	Cook Inc	180003348082930	11/17	987	American Express	elizabethmoo
9999	40674 Barrett Stravenue\nGrimesville,	64 Hr	AM	Mozilla/5.0 (X11; Linux i686;	Greene Inc	4139972901927273	02/19	302	JCB 15 digit	rachelford@\

1.Display Top 10 Rows of the Dataset

In [29]:
```
data.head(10)
```

Out[29]:

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	
0	16629 Pace Camp Apt. 448\nAlexisborough, NE 77...	46 in	PM	Opera/9.56.(X11; Linux x86_64; sl-SI) Presto/2...	Martinez-Herman	6011929061123406	02/20	900	JCB 16 digit	pdunla
1	9374 Jasmine Spurs Suite 508\nSouth John, TN 8...	28 rn	PM	Opera/8.93. (Windows 98; Win 9x 4.90; en-US) Pr...	Fletcher, Richards and Whitaker	3337758169645356	11/18	561	Mastercard	anthony
2	Unit 0065 Box 5052\nDPO AP 27450	94 vE	PM	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...	Simpson, Williams and Pham	675957666125	08/19	699	JCB 16 digit	amymi
3	7780 Julia Fords\nNew Stacy, WA 45798	36 vm	PM	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_8_0 ...	Williams, Marshall and Buchanan	6011578504430710	02/24	384	Discover	brent16@olsor
4	23012 Munoz Drive Suite 337\nNew Cynthia, TX 5...	20 IE	AM	Opera/9.58.(X11; Linux x86_64; it-IT) Presto/2...	Brown, Watson and Andrews	6011456623207998	10/25	678	Diners Club / Carte Blanche	christopherwrig
5	7502 Powell Mission Apt. 768\nTravisland, VA 3...	21 XT	PM	Mozilla/5.0 (Macintosh; U; PPC Mac OS X 10_8_5...	Silva-Anderson	30246185196287	07/25	7169	Discover	ynguye
6	93971 Conway Causeway\nAndersonburgh, AZ 75107	96 Xt	AM	Mozilla/5.0 (compatible; MSIE 7.0; Windows NT ...	Gibson and Sons	6011398782655569	07/24	714	VISA 16 digit	olivia0
7	260 Rachel Plains Suite 366\nCastroberg, WV 24...	96 pG	PM	Mozilla/5.0 (X11; Linux i686) AppleWebKit/5350...	Marshall-Collins	561252141909	06/25	256	VISA 13 digit	phillip
8	2129 Dylan Burg\nNew Michelle, ME 28650	45 JN	PM	Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_7...	Galloway and Sons	180041795790001	04/24	899	JCB 16 digit	kdavis@ra

AM CC CC CC

2.Check Last 10 rows of the Dataset

In [30]:
```
data.tail(10)
```

Out[30]:

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	
9990	75731 Molly Springs\nWest Danielle, VT 96934-5102	93 ty	PM	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_7_4;...	Pace, Vazquez and Richards	869968197049750	04/24	877	JCB 15 digit	andersonmichael@s
9991	PSC 8165, Box 8498\nAPO AP 60327-0346	50 dA	AM	Mozilla/5.0 (compatible; MSIE 8.0; Windows NT ...	Snyder Inc	4221582137197481	02/24	969	Voyager	kking@\
9992	885 Allen Mountains Apt. 230\nWallhaven, LA 16995	40 vH	PM	Mozilla/5.0 (Macintosh; PPC Mac OS X 10_6_5) A...	Wells Ltd	4664825258997302	10/20	431	Discover	bberry
9993	7555 Larson Locks Suite 229\nEllisburgh, MA 34...	72 jg	PM	Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_8...	Colon and Sons	30025560104631	10/25	629	Maestro	chelseawilliams
9994	6276 Rojas Hollow\nLake Louis, WY 56410-7837	93 Ex	PM	Opera/9.68.(X11; Linux x86_64; sl-SI) Presto/2...	Ritter-Smith	3112186784121077	01/25	1823	Maestro	iroberts(
9995	966 Castaneda Locks\nWest Juliafurt, CO 96415	92 XI	PM	Mozilla/5.0 (Windows NT 5.1) AppleWebKit/5352 ...	Randall-Sloan	342945015358701	03/22	838	JCB 15 digit	iscott@wade
9996	832 Curtis Dam Suite 785\nNorth Edwardburgh, T...	41 JY	AM	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...	Hale, Collins and Wilson	210033169205009	07/25	207	JCB 16 digit	mary85@l
9997	Unit 4434 Box 6343\nDPO AE 28026-0283	74 Zh	AM	Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_7...	Anderson Ltd	6011539787356311	05/21	1	VISA 16 digit	tyler16(

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	
9998	0096 English Rest\nRoystad, IA	74 cl	PM	Mozilla/5.0 (Macintosh; Intel Mac OS X	Cook Inc	180003348082930	11/17	987	American Express	elizabethmoo

3.Check Data Type of Each Coloumn

In [32]:
```
data.dtypes
```

Out[32]:
```
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
```

4. Check Null Values In the Dataset

In [33]:
```
data.isnull()
```

Out[33]:

	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
0	False	False	False	False	False	False	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False	False	False	False	False	False	False
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9995	False	False	False	False	False	False	False	False	False	False	False	False	False	False
9996	False	False	False	False	False	False	False	False	False	False	False	False	False	False
9997	False	False	False	False	False	False	False	False	False	False	False	False	False	False
9998	False	False	False	False	False	False	False	False	False	False	False	False	False	False
9999	False	False	False	False	False	False	False	False	False	False	False	False	False	False

10000 rows × 14 columns

In [36]:
```
data.isnull().sum()
# Here we dont have any missing values in the data set so the data shows all zeros . If there would have b
#values then it would have appeared in numbers .
```

Out[36]:
```
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
```

5. How many Rows and Coloumns are there in Our Dataset ?

In [37]:
```
data.columns
```

Out[37]:
```
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')
```

In [38]:
```
len(data.columns)
```

Out[38]:
```
14
```

In [39]:
```
len(data)
```

Out[39]:
```
10000
```

In [40]:
```
data.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
```

6. Highest and Lowest Purchase Prices

In [42]:
```
#Lets first see the columns that we have and from there we will calculate the maximum and minimum Purchase
data.columns
```

Out[42]:
```
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')
```

In [44]:
```
data['Purchase Price'].max()
```

Out[44]:
```
99.99
```

In [45]:
```
data['Purchase Price'].min()
```

Out[45]:
```
0.0
```

7. Average Purchase Price

In [46]:
```
data['Purchase Price'].mean()
```

Out[46]:
```
50.34730200000025
```

8. How many People have French 'fr' As their Language ?

In [47]:
```
data.columns
```

Out[47]:
```
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')
```

In [48]:
```
data.Language
```

Out[48]:
```
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
```

In [50]:
```
data[data['Language']=='fr']
```

Out[50]:

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	Ema
1	9374 Jasmine Spurs Suite 508\nSouth John, TN 8...	28 rn	PM	Opera/8.93. (Windows 98; Win 9x 4.90; en-US) Pr...	Fletcher, Richards and Whitaker	3337758169645356	11/18	561	Mastercard	anthony41@reed.co
19	125 Hall Summit\nBoothton, IL 41721	99 CU	PM	Mozilla/5.0 (compatible; MSIE 7.0; Windows NT ...	Turner-Mckinney	676343504830	02/20	440	VISA 16 digit	ruiznicole@gmail.co
53	PSC 9431, Box 7059\nAPO AA 29285-1363	14 qD	AM	Opera/9.34.(X11; Linux x86_64; it-IT) Presto/2...	Higgins, Cardenas and Kennedy	869972604798355	08/17	157	JCB 16 digit	amorales@yahoo.co
76	49206 Campbell Port\nNorth Cliffordshire, HI 3...	71 iu	PM	Mozilla/5.0 (Macintosh; U; PPC Mac OS X 10_5_9...	Jacobs-Tucker	6011343518820988	01/17	806	Voyager	eperez@hotmail.co
82	493 Smith Valleys Suite 004\nNew Madelineville...	35 ls	PM	Mozilla/5.0 (iPod; U; CPU iPhone OS 4_0 like M...	Robinson, Johnston and Valdez	4351359627548412	06/17	937	VISA 13 digit	amendez@yahoo.co
...	...	...	...	...	...	...	...	...	...	
9941	43757 Brown Lodge\nValerieberg, PR 88518	68 DG	AM	Mozilla/5.0 (compatible; MSIE 5.0; Windows NT ...	Jones, Williams and Dunn	6011508474487291	04/26	906	Mastercard	christian55@gmail.co
9947	32827 Carl Inlet\nSouth Nicole, NY 38081-6636	40 Dp	PM	Mozilla/5.0 (Windows; U; Windows 95) AppleWebK...	Pruitt-Flores	3158564208754951	03/17	386	Mastercard	josephsmith@gmail.co
9951	518 Brown Dam\nGarciaside, IN 33057	71 wq	AM	Mozilla/5.0 (compatible; MSIE 8.0; Windows NT ...	Crosby, Vasquez and Ballard	5256758441931287	12/17	146	VISA 16 digit	cjennings@yahoo.co

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	Ema
9977	02182 Keith Expressway\nEast Shannon, CT 20578...	34 RL	AM	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...	Deleon, Jacobson and Benton	4186094003664688	06/21	397	JCB 16 digit	daltoncarter@yahoo.co
9980	6061 Dave Lights\nPhillipsview,	25 My	AM	Opera/8.58. (Windows NT 5.0; it-IT)	Cortez-Frye	6011944199756993	12/24	755	JCB 15 digit	mark74@kirb stewart.o

In [51]:
```
len(data[data['Language']=='fr'])
```

Out[51]:
```
1097
```

In [52]:
```
# another method is by using count
data[data['Language']=='fr'].count()
```

Out[52]:
```
Address             1097
Lot                 1097
AM or PM            1097
Browser Info        1097
Company             1097
Credit Card         1097
CC Exp Date         1097
CC Security Code    1097
CC Provider         1097
Email               1097
Job                 1097
IP Address          1097
Language            1097
Purchase Price      1097
dtype: int64
```

9.Job Title contains Engineer

In [53]:
```
# Lets see the columns first
data.columns
```

Out[53]:
```
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')
```

In [57]:
```
data.Job
```

Out[57]:
```
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
```

In [61]:
```
data[data['Job'].str.contains('engineer',case=False)]
```

Out[61]:

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	
1	9374 Jasmine Spurs Suite 508\nSouth John, TN 8...	28 rn	PM	Opera/8.93. (Windows 98; Win 9x 4.90; en-US) Pr...	Fletcher, Richards and Whitaker	3337758169645356	11/18	561	Mastercard	anthony41@re
3	7780 Julia Fords\nNew Stacy, WA 45798	36 vm	PM	Mozilla/5.0 (Macintosh; Intel Mac OS X 10_8_0 ...	Williams, Marshall and Buchanan	6011578504430710	02/24	384	Discover	brent16@ robins
50	41159 Michael Centers\nAdamsfort, RI 37108-6674	46 Ce	PM	Mozilla/5.0 (Windows 98; Win 9x 4.90; sl-SI; r...	Wright, Williams and Mendez	4008586485908075	05/19	945	JCB 16 digit	susanvalentine@obi
55	27635 Maureen Bypass Apt. 883\nSandraview, SD ...	59 LJ	AM	Mozilla/5.0 (iPod; U; CPU iPhone OS 3_3 like M...	Sims-Lyons	3158113629128344	09/19	857	VISA 16 digit	adkinsarthur@yah
60	7126 Katherine Squares\nPerkinsview, CO 97299-...	63 qu	AM	Opera/8.68.(X11; Linux x86_64; en-US) Presto/2...	Marshall-Fernandez	349767747049645	05/20	672	JCB 15 digit	sweeneyhannah@jo
...	...	...	...	...	...	...	...	...	...	
9948	95544 Johnson Isle Suite 939\nMichaelberg, RI ...	91 bW	AM	Opera/8.36.(X11; Linux x86_64; sl-SI) Presto/2...	Fox-Peterson	4762924304307	03/17	567	Mastercard	haleybenjamin@gm
9952	9991 Vaughn Hills\nRacheltown, PA 55409	36 KC	PM	Mozilla/5.0 (X11; Linux i686; rv:1.9.5.20) Gec...	Ward, Smith and Castillo	6011679271321726	09/19	964	Voyager	jonesjennifer@ols

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	
9970	0060 Keith Stream\nWestport, CO 47097	11 nt	PM	Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_8...	Carpenter, Good and Hart	6011485664704662	07/19	543	Discover	rangelbrian@hotm
9977	02182 Keith Expressway\nEast Shannon, CT 20578...	34 RL	AM	Mozilla/5.0 (compatible; MSIE 9.0; Windows NT ...	Deleon, Jacobson and Benton	4186094003664688	06/21	397	JCB 16 digit	daltoncarter@yah

In [62]:
```
len(data[data['Job'].str.contains('engineer',case=False)])
```

Out[62]: 984

10. Find Email of the Person with the following IP address: 132.207.160.22

In [65]:
```
data.columns
```

Out[65]:
```
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')
```

In [68]:
```
data[data['IP Address']=='132.207.160.22']['Email']
```

Out[68]:
```
2    amymiller@morales-harrison.com
Name: Email, dtype: object
```

11.How many people have Mastercard as their Credit card provider and made a purchase above 50 ?

In [70]:
```
data.columns
```

Out[70]:
```
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')
```

In [72]:
```
data['Credit Card']
```

Out[72]:
```
0       6011929061123406
1       3337758169645356
2           675957666125
3       6011578504430710
4       6011456623207998
                  ...
9995     342945015358701
9996     210033169205009
9997    6011539787356311
9998     180003348082930
9999    4139972901927273
Name: Credit Card, Length: 10000, dtype: int64
```

In [73]:
```
data['CC Provider']
```

Out[73]:
```
0                      JCB 16 digit
1                        Mastercard
2                      JCB 16 digit
3                          Discover
4       Diners Club / Carte Blanche
                     ...
9995                   JCB 15 digit
9996                   JCB 16 digit
9997                  VISA 16 digit
9998                American Express
9999                   JCB 15 digit
Name: CC Provider, Length: 10000, dtype: object
```

In [79]:
```
data[(data['CC Provider']=='Mastercard' )& (data['Purchase Price'] > 50)]
```

Out[79]:

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	
1	9374 Jasmine Spurs Suite 508\nSouth John, TN 8...	28 rn	PM	Opera/8.93. (Windows 98; Win 9x 4.90; en-US) Pr...	Fletcher, Richards and Whitaker	3337758169645356	11/18	561	Mastercard	anthony4
18	461 Christopher Square\nWest Michaelchester, C...	17 SB	PM	Mozilla/5.0 (X11; Linux i686; rv:1.9.6.20) Gec...	Beard, Abbott and Pena	6011350184276270	12/22	767	Mastercard	hannah63
31	USNS Alvarado\nFPO AA 27052-1231	26 Lh	PM	Opera/8.84.(X11; Linux i686; sl-SI) Presto/2.9...	Nicholson Group	4614997834548	03/22	909	Mastercard	ashley12@
35	93392 Webb Gardens Apt. 220\nLaurabury, AR 999...	37 om	AM	Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10_7...	Mora Ltd	6011049630969815	09/16	367	Mastercard	hgonzalez@r
90	431 Bowen Lights\nFergusonborough, MH 01362	31 tG	AM	Mozilla/5.0 (Windows NT 5.2; it-IT; rv:1.9.1.2...	Copeland-Lee	639032576097	06/18	868	Mastercard	nrogers
...	...	...	...	...	...	...	...	...	...	...
9941	43757 Brown Lodge\nValerieberg, PR 88518	68 DG	AM	Mozilla/5.0 (compatible; MSIE 5.0; Windows NT ...	Jones, Williams and Dunn	6011508474487291	04/26	906	Mastercard	christian5
9948	95544 Johnson Isle Suite 939\nMichaelberg, RI ...	91 bW	AM	Opera/8.36.(X11; Linux x86_64; sl-SI) Presto/2...	Fox-Peterson	4762924304307	03/17	567	Mastercard	haleybenjamii
9954	051 Samantha Wells Apt. 328\nScottborough, OR ...	11 vG	AM	Mozilla/5.0 (Macintosh; U; PPC Mac OS X 10_8_2...	Mendoza, Zimmerman and Reilly	30232295374907	05/21	762	Mastercard	brownamy@

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	
9981	087 Larson Roads Apt. 587\nRicestad, WI 98077-...	95 Kw	AM	Opera/9.63. (Windows NT 5.01; en-US) Presto/2.9...	Ortiz, Schultz and Adams	4690863684605	01/19	695	Mastercard	laurenbennett@
9987	2754 Klein Mission\nJohnsonview,	65 Eg	PM	Opera/9.26. (Windows CE; sl-SI)	Curtis LLC	180027305702263	12/24	865	Mastercard	denisehamiltc

In [80]:
```
len(data[(data['CC Provider']=='Mastercard' )& (data['Purchase Price'] > 50)])
```

Out[80]: 405

In [81]:
```
#Alternatively we can use the count method also
data[(data['CC Provider']=='Mastercard' )& (data['Purchase Price'] > 50)] . count()
```

Out[81]:
```
Address             405
Lot                 405
AM or PM            405
Browser Info        405
Company             405
Credit Card         405
CC Exp Date         405
CC Security Code    405
CC Provider         405
Email               405
Job                 405
IP Address          405
Language            405
Purchase Price      405
dtype: int64
```

12. Find Email of the Person with the following Credit Card Number : 4664825258997302

In [82]:
```
data.columns
```

Out[82]:
```
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')
```

In [85]:
```
data[data['Credit Card']==4664825258997302]
```

Out[85]:

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	Email	Job	
9992	885 Allen Mountains Apt. 230\nWallhaven, LA 16995	40 vH	PM	Mozilla/5.0 (Macintosh; PPC Mac OS X 10_6_5) A...	Wells Ltd	4664825258997302	10/20	431	Discover	bberry@wright.net	Set designer	17

In [86]:
```
data[data['Credit Card']==4664825258997302] ['Email']
```

Out[86]:
```
9992    bberry@wright.net
Name: Email, dtype: object
```

13.How many people purchase during the AM and how many people purchase during the PM ?

In [87]:
```
data.columns
```

Out[87]:
```
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')
```

In [88]:
```
data['AM or PM'].value_counts()
```

Out[88]:
```
PM    5068
AM    4932
Name: AM or PM, dtype: int64
```

14. How many People have credit card that expires in 2020 ?

In [89]:
```
data.columns
```

Out[89]:
```
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')
```

In [90]:
```
data['CC Exp Date']
```

Out[90]:
```
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
```

In [91]:
```
def fun():
    count=0
    for date in data['CC Exp Date']:
        if date.split('/')[1]=='20':
            count=count+1
    print(count)
```

In [92]:
```
fun()
```

```
988
```

In [93]:
```
data.columns
```

Out[93]:
```
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')
```

In [98]:
```
len(data[data['CC Exp Date'].apply(lambda x:x[3:]=='20')])
```

Out[98]:
```
988
```

15.Top 5 Most Popular Email providers (e.g. gmail.com,yahoo.com,etc...)

In [100]:
```
data.columns
```

Out[100]:
```
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')
```

In [101]:
```
data['Email']
```

Out[101]:
```
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
```

In [102]:
```
list1=[]
for email in data['Email']:
    list1.append(email.split('@')[1])
```

In [104]:
```
data['temp']=list1
```

In [106]:
```
data.head(1)
```

Out[106]:

	Address	Lot	AM or PM	Browser Info	Company	Credit Card	CC Exp Date	CC Security Code	CC Provider	Email	
0	16629 Pace Camp Apt. 448\nAlexisborough, NE 77...	46 in	PM	Opera/9.56.(X11; Linux x86_64; sl-SI) Presto/2...	Martinez-Herman	6011929061123406	02/20	900	JCB 16 digit	pdunlap@yahoo.com	produ de

In [108]:
```
data['temp'].value_counts().head()
```

Out[108]:
```
hotmail.com     1638
yahoo.com       1616
gmail.com       1605
smith.com         42
williams.com      37
Name: temp, dtype: int64
```

In [ ]: