```
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

```
import pandas as pd

file_path = "/content/drive/MyDrive/Data_Science/bank_train.csv"

df = pd.read_csv(file_path)
print(df.head())
```

```
   age          job   marital  education default  balance housing loan  \
0   76      retired   married  secondary      no   2302.0      no   no
1   66      retired  divorced    unknown      no     53.0      no   no
2   51   management   married   tertiary      no   2455.0     yes   no
3   41  blue-collar   married  secondary      no    356.0     yes   no
4   51   technician   married  secondary      no  -1944.0     yes   no

     contact  day month  duration  campaign  pdays  previous poutcome deposit
0  telephone    5   feb       110         1     87         2  failure      no
1   cellular   12   jul       562         4     -1         0  unknown     yes
2   cellular   21   jul       553         1     -1         0  unknown     yes
3   cellular   14   may        90         5     -1         0  unknown      no
4   cellular    7   may       623         1     -1         0  unknown     yes
```

Write python code for indexing rows and columns using iloc or loc method based on the following conditions:

a. select the rows where clients with primary education have subscribed to a deposit?

```
df.loc[(df["education"]=="primary") & (df["deposit"]=="yes")]
```

	age	job	marital	education	default	balance	housing	loan	contact	day	month	duration	campaign	pdays	previous
29	39	blue-collar	divorced	primary	no	1317.0	yes	no	cellular	20	nov	543	1	170	4
39	31	unemployed	single	primary	no	163.0	no	no	cellular	30	jan	707	2	2	1
56	49	blue-collar	single	primary	no	566.0	yes	no	cellular	25	jul	979	2	-1	0
66	53	blue-collar	married	primary	yes	-462.0	no	no	cellular	29	jan	470	1	-1	0
103	42	blue-collar	single	primary	no	4930.0	no	no	unknown	18	jun	973	1	-1	0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4411	55	housemaid	married	primary	no	0.0	yes	no	cellular	17	jul	1303	2	-1	0
4422	80	retired	married	primary	no	1468.0	no	no	cellular	13	jan	330	3	-1	0
4451	41	blue-collar	married	primary	no	143.0	yes	yes	unknown	2	jun	659	2	-1	0
4452	53	blue-collar	married	primary	no	421.0	yes	no	cellular	20	nov	677	1	-1	0
4458	32	blue-collar	married	primary	no	-454.0	yes	yes	cellular	18	may	801	5	355	2

243 rows x 17 columns

b. select the rows where clients who have not subscribed to a deposit?

```
df.loc[df["deposit"]=="no"]
```

	age	job	marital	education	default	balance	housing	loan	contact	day	month	duration	campaign	pdays	previou
0	76	retired	married	secondary	no	2302.0	no	no	telephone	5	feb	110	1	87	
3	41	blue-collar	married	secondary	no	356.0	yes	no	cellular	14	may	90	5	-1	
6	59	retired	married	secondary	no	136.0	no	no	cellular	6	aug	301	4	-1	
7	34	blue-collar	married	primary	no	5299.0	yes	no	unknown	26	jun	75	5	-1	
9	44	blue-collar	married	secondary	no	879.0	yes	no	cellular	3	apr	383	1	-1	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
4457	43	management	married	tertiary	no	1336.0	yes	yes	cellular	27	may	82	2	309	
4460	54	retired	married	secondary	no	522.0	no	yes	cellular	14	jul	81	3	-1	
4461	33	management	married	tertiary	no	133.0	yes	no	unknown	26	may	308	4	-1	
4464	31	technician	single	secondary	no	628.0	yes	no	unknown	12	may	1083	2	-1	
4465	70	retired	divorced	primary	no	383.0	no	no	cellular	28	apr	50	2	-1	

2354 rows x 17 columns

c. select the rows where clients who have subscribed to a deposit either have a housing or a personal loan?

```
df.loc[(df["deposit"]=="yes") & ((df["housing"]=="yes") | (df["loan"]=="yes"))]
```

	age	job	marital	education	default	balance	housing	loan	contact	day	month	duration	campaign	pdays	previous
2	51	management	married	tertiary	no	2455.0	yes	no	cellular	21	jul	553	1	-1	0
4	51	technician	married	secondary	no	-1944.0	yes	no	cellular	7	may	623	1	-1	0
15	37	management	single	tertiary	no	455.0	yes	no	cellular	13	aug	904	6	-1	0
17	24	admin.	single	tertiary	no	0.0	yes	no	cellular	27	may	122	2	-1	0
21	33	admin.	married	tertiary	no	79.0	yes	no	cellular	5	may	389	1	195	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4454	30	blue-collar	single	secondary	no	155.0	yes	yes	cellular	9	jul	1426	3	-1	0
4458	32	blue-collar	married	primary	no	-454.0	yes	yes	cellular	18	may	801	5	355	2
4459	37	technician	single	secondary	no	3326.0	yes	no	unknown	21	may	799	1	-1	0
4462	39	services	divorced	secondary	no	687.0	yes	no	cellular	9	jul	869	1	-1	0
4463	40	admin.	single	secondary	no	2040.0	yes	no	cellular	18	may	906	2	350	2

893 rows x 17 columns

d. select the rows where clients with secondary education who have not subscribed to a deposit?

```
df.loc[(df["education"]=="secondary") & (df["deposit"]=="no")]
```

	age	job	marital	education	default	balance	housing	loan	contact	day	month	duration	campaign	pdays	previous
0	76	retired	married	secondary	no	2302.0	no	no	telephone	5	feb	110	1	87	2
3	41	blue-collar	married	secondary	no	356.0	yes	no	cellular	14	may	90	5	-1	0
6	59	retired	married	secondary	no	136.0	no	no	cellular	6	aug	301	4	-1	0
9	44	blue-collar	married	secondary	no	879.0	yes	no	cellular	3	apr	383	1	-1	0
10	34	services	married	secondary	no	1637.0	yes	no	cellular	21	nov	107	4	-1	0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4446	35	services	married	secondary	no	0.0	yes	no	cellular	24	jul	810	1	-1	0
4453	31	services	married	secondary	no	505.0	no	no	cellular	11	jul	773	3	-1	0
4456	54	blue-collar	married	secondary	no	-102.0	yes	no	cellular	27	aug	164	7	-1	0
4460	54	retired	married	secondary	no	522.0	no	yes	cellular	14	jul	81	3	-1	0

e. select the rows where clients who have subscribed to a term deposit as an outcome of the successful marketing campaign?

```
df.loc[(df["deposit"]=="yes") & (df["poutcome"]=="success")]
```

	age	job	marital	education	default	balance	housing	loan	contact	day	month	duration	campaign	pdays	previou
19	76	self-employed	married	unknown	no	4984.0	no	no	telephone	28	apr	403	1	182	
21	33	admin.	married	tertiary	no	79.0	yes	no	cellular	5	may	389	1	195	
45	71	retired	divorced	secondary	no	0.0	no	no	cellular	26	feb	771	1	171	
51	68	retired	married	secondary	no	1146.0	no	no	cellular	13	may	356	1	71	
52	46	management	married	tertiary	no	273.0	yes	no	cellular	18	mar	910	2	184	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
4338	38	admin.	divorced	secondary	no	19.0	yes	no	cellular	5	feb	1130	3	251	
4372	20	student	single	secondary	no	215.0	no	no	cellular	24	feb	175	1	92	
4376	42	technician	married	secondary	no	994.0	yes	no	cellular	12	nov	227	3	93	
4408	29	housemaid	single	tertiary	no	19.0	no	no	cellular	4	may	268	1	88	
4448	27	blue-collar	single	secondary	no	535.0	no	no	cellular	16	aug	265	3	95	

f. select the rows where unemployed clients who have not subscribed to deposit?

```
df.loc[df["deposit"]=="no"]
```

	age	job	marital	education	default	balance	housing	loan	contact	day	month	duration	campaign	pdays	previou
0	76	retired	married	secondary	no	2302.0	no	no	telephone	5	feb	110	1	87	
3	41	blue-collar	married	secondary	no	356.0	yes	no	cellular	14	may	90	5	-1	
6	59	retired	married	secondary	no	136.0	no	no	cellular	6	aug	301	4	-1	
7	34	blue-collar	married	primary	no	5299.0	yes	no	unknown	26	jun	75	5	-1	
9	44	blue-collar	married	secondary	no	879.0	yes	no	cellular	3	apr	383	1	-1	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
4457	43	management	married	tertiary	no	1336.0	yes	yes	cellular	27	may	82	2	309	
4460	54	retired	married	secondary	no	522.0	no	yes	cellular	14	jul	81	3	-1	
4461	33	management	married	tertiary	no	133.0	yes	no	unknown	26	may	308	4	-1	
4464	31	technician	single	secondary	no	628.0	yes	no	unknown	12	may	1083	2	-1	
4465	70	retired	divorced	primary	no	383.0	no	no	cellular	28	apr	50	2	-1	

2354 rows x 17 columns

g) select coloumns ‘education’ and ‘balance’ where age is less than or equal to 30.

```
df.loc[df["age"] <= 30, ["education","balance"]]
```

	education	balance
17	tertiary	0.0
22	primary	544.0
26	secondary	30.0
27	secondary	195.0
40	secondary	743.0
...	...	...
4440	tertiary	674.0
4448	secondary	535.0
4449	secondary	81.0
4454	secondary	155.0
4455	tertiary	265.0

809 rows x 2 columns