

```
In [1]: #Used Stack Overflow sample data
import pandas as pd
```

```
In [2]: df = pd.read_csv("survey_results_public.csv")
```

In [3]: df

Out[3]:

Index	Respondent ID	Main Branch	Employment	Country	US State	UK Country	Education Level
0	1	I am a developer by profession	Independent contractor, freelancer, or self-employed	Slovakia	NaN	NaN	Secondary (e.g. American sch)
1	2	I am a student who is learning to code	Student, full-time	Netherlands	NaN	NaN	Bachelor's (B.A., B.S.,)
2	3	I am not primarily a developer, but I write code	Student, full-time	Russian Federation	NaN	NaN	Bachelor's (B.A., B.S.,)
3	4	I am a developer by profession	Employed full-time	Austria	NaN	NaN	Master's (M./ M.Eng., MF)
4	5	I am a developer by profession	Independent contractor, freelancer, or self-employed	United Kingdom of Great Britain and Northern I...	NaN	England	Master's (M./ M.Eng., MF)
5	6	I am a student who is learning to code	Student, part-time	United States of America	Georgia	NaN	Bachelor's (B.A., B.S.,)
6	7	I code primarily as a hobby	I prefer not to say	United States of America	New Hampshire	NaN	Secondary (e.g. American sch)
7	8	I am a student who is learning to code	Student, full-time	Malaysia	NaN	NaN	Bachelor's (B.A., B.S.,)
8	9	I am a developer by profession	Employed part-time	India	NaN	NaN	Bachelor's (B.A., B.S.,)
9	10	I am a developer by profession	Employed full-time	Sweden	NaN	NaN	Master's (M./ M.Eng., MF)
10	11	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Bachelor's (B.A., B.S.,)
11	12	I am a developer by profession	Employed full-time	Spain	NaN	NaN	Bachelor's (B.A., B.S.,)
12	13	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's (M./ M.Eng., MF)

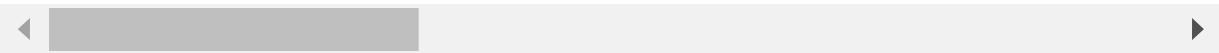
RespondID	MainBranch	Employment	Country	US_State	UK_Country	I
13	14	I am a student who is learning to code	Employed full-time	Peru	NaN	NaN Master's (M./ M.Eng., MF)
14	15	I used to be a developer by profession, but no...	Not employed, but looking for work	United Kingdom of Great Britain and Northern I...	NaN	England Bachelor's (B.A., B.S.,
15	16	I am a student who is learning to code	Student, full-time	United States of America	Missouri	NaN Secondary (e.g. American sch)
16	17	I am a developer by profession	Employed full-time	Turkey	NaN	NaN Bachelor's (B.A., B.S.,
17	18	I am a developer by profession	Employed full-time	Canada	NaN	NaN Bachelor's (B.A., B.S.,
18	19	I am not primarily a developer, but I write co...	I prefer not to say	Singapore	NaN	NaN Other degree Ed.
19	20	I used to be a developer by profession, but no...	Employed full-time	Brazil	NaN	NaN Bachelor's (B.A., B.S.,
20	21	I am a developer by profession	Student, full-time	Germany	NaN	NaN Bachelor's (B.A., B.S.,
21	22	I am a student who is learning to code	Student, full-time	Sweden	NaN	NaN Bachelor's (B.A., B.S.,
22	23	I am a student who is learning to code	Student, full-time	India	NaN	NaN college/u study ea
23	24	I am a developer by profession	Employed full-time	France	NaN	NaN Master's (M./ M.Eng., MF)
24	25	I am a developer by profession	Employed full-time	Germany	NaN	NaN Master's (M./ M.Eng., MF)
25	26	I am not primarily a developer, but I write co...	Employed full-time	Germany	NaN	NaN Other degree Ed.

RespondId	MainBranch	Employment	Country	US_State	UK_Country	I
26	27	I am not primarily a developer, but I write code	Employed full-time	Switzerland	NaN	NaN Master's (M./ M.Eng., MF)
27	28	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England Bachelor's (B.A., B.S.,)
28	29	I am a developer by profession	Independent contractor, freelancer, or self-employed	United Kingdom of Great Britain and Northern I...	NaN	England Secondary (e.g. American sch)
29	30	I am a developer by profession	Employed full-time	Russian Federation	NaN	NaN Master's (M./ M.Eng., MF)
...
83409	83410	I am a developer by profession	Employed full-time	Netherlands	NaN	NaN Other degree Ed.
83410	83411	I am a student who is learning to code	Student, part-time	India	NaN	NaN Bachelor's (B.A., B.S.,)
83411	83412	I am a developer by profession	Employed full-time	India	NaN	NaN Bachelor's (B.A., B.S.,)
83412	83413	I am a developer by profession	Independent contractor, freelancer, or self-employed	United States of America	Oregon	NaN Master's (M./ M.Eng., MF)
83413	83414	I used to be a developer by profession, but no...	Employed full-time	Germany	NaN	NaN Master's (M./ M.Eng., MF)
83414	83415	I code primarily as a hobby	Student, full-time	United States of America	Maryland	NaN Secondary (e.g. American sch)
83415	83416	I am a developer by profession	Employed full-time	Germany	NaN	NaN Master's (M./ M.Eng., MF)
83416	83417	I am a developer by profession	Employed full-time	United States of America	New Mexico	NaN Bachelor's (B.A., B.S.,)
83417	83418	I am a developer by profession	Student, full-time	India	NaN	NaN Bachelor's (B.A., B.S.,)

	RespondId	MainBranch	Employment	Country	US_State	UK_Country	I
83418	83419	I am a student who is learning to code	Student, full-time	Israel	NaN	NaN	Primary/ele
83419	83420	I am a developer by profession	Employed full-time	Austria	NaN	NaN	Master's (M./ M.Eng., ME)
83420	83421	I am a developer by profession	Employed full-time	France	NaN	NaN	Master's (M./ M.Eng., ME)
83421	83422	I am a developer by profession	Independent contractor, freelancer, or self-em...	Norway	NaN	NaN	Bachelor's (B.A., B.S.,
83422	83423	I am not primarily a developer, but I write co...	Independent contractor, freelancer, or self-em...	Viet Nam	NaN	NaN	Bachelor's (B.A., B.S.,
83423	83424	I am a developer by profession	Employed part-time	Cameroon	NaN	NaN	Master's (M./ M.Eng., ME)
83424	83425	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Bachelor's (B.A., B.S.,
83425	83426	I am a developer by profession	Employed full-time	Finland	NaN	NaN	Secondary (e.g. American sch)
83426	83427	I am a developer by profession	Employed full-time	United States of America	Nebraska	NaN	Bachelor's (B.A., B.S.,
83427	83428	I am a developer by profession	Employed full-time	United States of America	Pennsylvania	NaN	Bachelor's (B.A., B.S.,
83428	83429	I am a developer by profession	Employed full-time	Brazil	NaN	NaN	Master's (M./ M.Eng., ME)
83429	83430	I code primarily as a hobby	Not employed, but looking for work	United States of America	Washington	NaN	Bachelor's (B.A., B.S.,
83430	83431	I am a developer by profession	Employed full-time	United States of America	Illinois	NaN	Master's (M./ M.Eng., ME)

RespondId	MainBranch	Employment	Country	US_State	UK_Country	I
83431	83432	I am a developer by profession	Independent contractor, freelancer, or self-em...	Pakistan	NaN	Bachelor's (B.A., B.S.,
83432	83433	I am a developer by profession	Employed full-time	Canada	NaN	Bachelor's (B.A., B.S.,
83433	83434	I am a developer by profession	Independent contractor, freelancer, or self-em...	Brazil	NaN	Bachelor's (B.A., B.S.,
83434	83435	I am a developer by profession	Employed full-time	United States of America	Texas	Bachelor's (B.A., B.S.,
83435	83436	I am a developer by profession	Independent contractor, freelancer, or self-em...	Benin	NaN	Bachelor's (B.A., B.S.,
83436	83437	I am a developer by profession	Employed full-time	United States of America	New Jersey	Secondar (e.g. Americ sch
83437	83438	I am a developer by profession	Employed full-time	Canada	NaN	Bachelor's (B.A., B.S.,
83438	83439	I am a developer by profession	Employed full-time	Brazil	NaN	Prof degree (

83439 rows × 48 columns



In [4]: df.shape

Out[4]: (83439, 48)

In [5]: df.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 83439 entries, 0 to 83438
Data columns (total 48 columns):
ResponseId           83439 non-null int64
MainBranch            83439 non-null object
Employment             83323 non-null object
Country               83439 non-null object
US_State              14920 non-null object
UK_Country             4418 non-null object
EdLevel                83126 non-null object
Age1stCode             83243 non-null object
LearnCode              82963 non-null object
YearsCode               81641 non-null object
YearsCodePro             61216 non-null object
DevType                 66484 non-null object
OrgSize                  60726 non-null object
Currency                61080 non-null object
CompTotal                47183 non-null float64
CompFreq                 52150 non-null object
LanguageHaveWorkedWith    82357 non-null object
LanguageWantToWorkWith     76821 non-null object
DatabaseHaveWorkedWith      69546 non-null object
DatabaseWantToWorkWith       58299 non-null object
PlatformHaveWorkedWith        52135 non-null object
PlatformWantToWorkWith        41619 non-null object
WebframeHaveWorkedWith        61707 non-null object
WebframeWantToWorkWith        52095 non-null object
MiscTechHaveWorkedWith        47055 non-null object
MiscTechWantToWorkWith        38021 non-null object
ToolsTechHaveWorkedWith        72537 non-null object
ToolsTechWantToWorkWith        65480 non-null object
NEWCollabToolsHaveWorkedWith    81234 non-null object
NEWCollabToolsWantToWorkWith     73022 non-null object
OpSys                     83294 non-null object
NEWStuck                   83052 non-null object
NEWSOSites                  83171 non-null object
SOVisitFreq                  82413 non-null object
SOAccount                   82525 non-null object
SOPartFreq                  67553 non-null object
SOComm                      82319 non-null object
NEWOtherComms                  82828 non-null object
Age                        82407 non-null object
Gender                      82286 non-null object
Trans                       80678 non-null object
Sexuality                    73366 non-null object
Ethnicity                     79464 non-null object
Accessibility                  77603 non-null object
MentalHealth                  76920 non-null object
SurveyLength                  81711 non-null object
SurveyEase                     81948 non-null object
ConvertedCompYearly            46844 non-null float64
dtypes: float64(2), int64(1), object(45)
memory usage: 30.6+ MB
```

```
In [6]: #setting up option to view all the headers for the df  
pd.set_option("display.max_columns",85)
```

```
In [7]: #now can see all the column headers  
df
```

Out[7]:

Index	Respondent ID	Main Branch	Employment	Country	US State	UK Country	Education Level
0	1	I am a developer by profession	Independent contractor, freelancer, or self-employed	Slovakia	NaN	NaN	Secondary (e.g. American sch)
1	2	I am a student who is learning to code	Student, full-time	Netherlands	NaN	NaN	Bachelor's (B.A., B.S.,)
2	3	I am not primarily a developer, but I write code	Student, full-time	Russian Federation	NaN	NaN	Bachelor's (B.A., B.S.,)
3	4	I am a developer by profession	Employed full-time	Austria	NaN	NaN	Master's (M./ M.Eng., MF)
4	5	I am a developer by profession	Independent contractor, freelancer, or self-employed	United Kingdom of Great Britain and Northern I...	NaN	England	Master's (M./ M.Eng., MF)
5	6	I am a student who is learning to code	Student, part-time	United States of America	Georgia	NaN	Bachelor's (B.A., B.S.,)
6	7	I code primarily as a hobby	I prefer not to say	United States of America	New Hampshire	NaN	Secondary (e.g. American sch)
7	8	I am a student who is learning to code	Student, full-time	Malaysia	NaN	NaN	Bachelor's (B.A., B.S.,)
8	9	I am a developer by profession	Employed part-time	India	NaN	NaN	Bachelor's (B.A., B.S.,)
9	10	I am a developer by profession	Employed full-time	Sweden	NaN	NaN	Master's (M./ M.Eng., MF)
10	11	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Bachelor's (B.A., B.S.,)
11	12	I am a developer by profession	Employed full-time	Spain	NaN	NaN	Bachelor's (B.A., B.S.,)

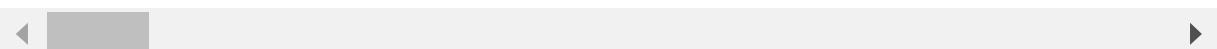
RespondID	MainBranch	Employment	Country	US_State	UK_Country	I
12	13	I am a developer by profession	Employed full-time	Germany	NaN	NaN Master's (M./ M.Eng., MF)
13	14	I am a student who is learning to code	Employed full-time	Peru	NaN	NaN Master's (M./ M.Eng., MF)
14	15	I used to be a developer by profession, but no...	Not employed, but looking for work	United Kingdom of Great Britain and Northern I...	NaN	England Bachelor's (B.A., B.S.,)
15	16	I am a student who is learning to code	Student, full-time	United States of America	Missouri	NaN Secondary (e.g. American sch)
16	17	I am a developer by profession	Employed full-time	Turkey	NaN	NaN Bachelor's (B.A., B.S.,)
17	18	I am a developer by profession	Employed full-time	Canada	NaN	NaN Bachelor's (B.A., B.S.,)
18	19	I am not primarily a developer, but I write code...	I prefer not to say	Singapore	NaN	NaN Other degree Ed.
19	20	I used to be a developer by profession, but no...	Employed full-time	Brazil	NaN	NaN Bachelor's (B.A., B.S.,)
20	21	I am a developer by profession	Student, full-time	Germany	NaN	NaN Bachelor's (B.A., B.S.,)
21	22	I am a student who is learning to code	Student, full-time	Sweden	NaN	NaN Bachelor's (B.A., B.S.,)
22	23	I am a student who is learning to code	Student, full-time	India	NaN	NaN college/university
23	24	I am a developer by profession	Employed full-time	France	NaN	NaN Master's (M./ M.Eng., MF)
24	25	I am a developer by profession	Employed full-time	Germany	NaN	NaN Master's (M./ M.Eng., MF)

RespondId	MainBranch	Employment	Country	US_State	UK_Country	I
25	26	I am not primarily a developer, but I write code...	Employed full-time	Germany	NaN	NaN Other degree Ed.
26	27	I am not primarily a developer, but I write code...	Employed full-time	Switzerland	NaN	NaN Master's (M./ M.Eng., M)
27	28	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England Bachelor's (B.A., B.S.,
28	29	I am a developer by profession	Independent contractor, freelancer, or self-em...	United Kingdom of Great Britain and Northern I...	NaN	England Secondary (e.g. American sch)
29	30	I am a developer by profession	Employed full-time	Russian Federation	NaN	NaN Master's (M./ M.Eng., M)
...
83409	83410	I am a developer by profession	Employed full-time	Netherlands	NaN	NaN Other degree Ed.
83410	83411	I am a student who is learning to code	Student, part-time	India	NaN	NaN Bachelor's (B.A., B.S.,
83411	83412	I am a developer by profession	Employed full-time	India	NaN	NaN Bachelor's (B.A., B.S.,
83412	83413	I am a developer by profession	Independent contractor, freelancer, or self-em...	United States of America	Oregon	NaN Master's (M./ M.Eng., M)
83413	83414	I used to be a developer by profession, but no...	Employed full-time	Germany	NaN	NaN Master's (M./ M.Eng., M)
83414	83415	I code primarily as a hobby	Student, full-time	United States of America	Maryland	NaN Secondary (e.g. American sch)
83415	83416	I am a developer by profession	Employed full-time	Germany	NaN	NaN Master's (M./ M.Eng., M)

RespondId	MainBranch	Employment	Country	US_State	UK_Country	I
83416	83417	I am a developer by profession	Employed full-time	United States of America	New Mexico	Nan Bachelor's (B.A., B.S.,
83417	83418	I am a developer by profession	Student, full-time	India	Nan	Nan Bachelor's (B.A., B.S.,
83418	83419	I am a student who is learning to code	Student, full-time	Israel	Nan	Nan Primary/ele
83419	83420	I am a developer by profession	Employed full-time	Austria	Nan	Nan Master's (M./ M.Eng., ME
83420	83421	I am a developer by profession	Employed full-time	France	Nan	Nan Master's (M./ M.Eng., ME
83421	83422	I am a developer by profession	Independent contractor, freelancer, or self-em...	Norway	Nan	Nan Bachelor's (B.A., B.S.,
83422	83423	I am not primarily a developer, but I write co...	Independent contractor, freelancer, or self-em...	Viet Nam	Nan	Nan Bachelor's (B.A., B.S.,
83423	83424	I am a developer by profession	Employed part-time	Cameroon	Nan	Nan Master's (M./ M.Eng., ME
83424	83425	I am a developer by profession	Employed full-time	Germany	Nan	Nan Bachelor's (B.A., B.S.,
83425	83426	I am a developer by profession	Employed full-time	Finland	Nan	Nan Secondary (e.g. American sch
83426	83427	I am a developer by profession	Employed full-time	United States of America	Nebraska	Nan Bachelor's (B.A., B.S.,
83427	83428	I am a developer by profession	Employed full-time	United States of America	Pennsylvania	Nan Bachelor's (B.A., B.S.,

RespondId	MainBranch	Employment	Country	US_State	UK_Country	I
83428	83429	I am a developer by profession	Employed full-time	Brazil	NaN	NaN Master's (M./ M.Eng., MF)
83429	83430	I code primarily as a hobby	Not employed, but looking for work	United States of America	Washington	NaN Bachelor's (B.A., B.S.,
83430	83431	I am a developer by profession	Employed full-time	United States of America	Illinois	NaN Master's (M./ M.Eng., MF)
83431	83432	I am a developer by profession	Independent contractor, freelancer, or self-em...	Pakistan	NaN	NaN Bachelor's (B.A., B.S.,
83432	83433	I am a developer by profession	Employed full-time	Canada	NaN	NaN Bachelor's (B.A., B.S.,
83433	83434	I am a developer by profession	Independent contractor, freelancer, or self-em...	Brazil	NaN	NaN Bachelor's (B.A., B.S.,
83434	83435	I am a developer by profession	Employed full-time	United States of America	Texas	NaN Bachelor's (B.A., B.S.,
83435	83436	I am a developer by profession	Independent contractor, freelancer, or self-em...	Benin	NaN	NaN Bachelor's (B.A., B.S.,
83436	83437	I am a developer by profession	Employed full-time	United States of America	New Jersey	NaN Secondary (e.g. American sch
83437	83438	I am a developer by profession	Employed full-time	Canada	NaN	NaN Bachelor's (B.A., B.S.,
83438	83439	I am a developer by profession	Employed full-time	Brazil	NaN	NaN Prof degree (

83439 rows × 48 columns



```
In [8]: #Loading schema to understand the data headers
schema_df = pd.read_csv("survey_results_schema.csv")
schema_df
```

Out[8]:

	qid	qname	question	force_resp	type	selector
0	QID16	S0	<div>Hel...	False	DB	TB
1	QID12	MetaInfo	Browser Meta Info	False	Meta	Browser
2	QID1	S1	<span style="font-size:22px; font-family: aria...	False	DB	TB
3	QID2	MainBranch	Which of the following options best describes ...	True	MC	SAVR
4	QID24	Employment	Which of the following best describes your cur...	False	MC	MAVR
5	QID6	Country	Where do you live? <span style="font-weight: b...	True	MC	DL
6	QID7	US_State	<p>In which state or territory of the USA do y...	False	MC	DL
7	QID9	UK_Country	In which part of the United Kingdom do you liv...	False	MC	DL
8	QID190	S2	<span style="font-size:22px; font-family: aria...	False	DB	TB
9	QID25	EdLevel	Which of the following best describes the high...	False	MC	SAVR
10	QID149	Age1stCode	At what age did you write your first line of c...	False	MC	MAVR
11	QID276	LearnCode	How did you learn to code? Select all that apply.	False	MC	MAVR
12	QID32	YearsCode	Including any education, how many years have y...	False	MC	DL
13	QID34	YearsCodePro	NOT including education, how many years have y...	False	MC	DL
14	QID31	DevType	Which of the following describes your current ...	False	MC	MAVR
15	QID29	OrgSize	Approximately how many people are employed by ...	False	MC	MAVR
16	QID50	Currency	Which currency do you use day-to-day? If your ...	True	MC	SB
17	QID51	CompTotal	What is your current total compensation (salar...	False	TE	SL
18	QID52	CompFreq	Is that compensation weekly, monthly, or yearly?	False	MC	MAVR
19	QID61	S3	<span style="font-size:22px; font-family: aria...	False	DB	TB
20	QID233	Language	Which programming, scripting, and markup la...	False	Matrix	Likert
21	QID262	Database	Which database environments have you do...	False	Matrix	Likert
22	QID263	Platform	Which cloud platforms have you done ext...	False	Matrix	Likert

	qid	qname	question	force_resp	type	selector
23	QID264	Webframe	Which web frameworks <span st...	False	Matrix	Likert
24	QID265	MiscTech	Which other frameworks and libraries ha...	False	Matrix	Likert
25	QID275	ToolsTech	Which tools have you done ext...	False	Matrix	Likert
26	QID274	NEWCollabTools	Which development environments...	False	Matrix	Likert
27	QID71	OpSys	What is the primary operating system in which ...	False	MC	SAVR
28	QID243	NEWStuck	What do you do when you get stuck on a problem...	False	MC	MAVR
29	QID91	S4	<span style="font-size:22px; font-family: aria...	False	DB	TB
30	QID266	NEWSOSites	Which of the following Stack Overflow sites ha...	False	MC	MAVR
31	QID100	SOVisitFreq	How frequently would you say you visit Stack O...	False	MC	MAVR
32	QID101	SOAccount	Do you have a Stack Overflow account?	False	MC	MAVR
33	QID102	SOPartFreq	How frequently would you say you participate i...	False	MC	MAVR
34	QID106	SOCComm	Do you consider yourself a member of the Stack...	False	MC	MAVR
35	QID267	NEWOtherComms	Are you a member of any other online developer...	False	MC	MAVR
36	QID268	NEWOtherCommsNames	Please name up to 5 other online developer com...	False	Matrix	Likert
37	QID121	S5	<span style="font-size:22px; font-family: aria...	False	DB	TB
38	QID127	Age	What is your age?	False	MC	MAVR
39	QID122	Gender	Which of the following describe you, if any? P...	False	MC	MAVR
40	QID153	Trans	Do you identify as transgender?	False	MC	MAVR
41	QID136	Sexuality	Which of the following describe you, if any? P..	False	MC	MAVR
42	QID126	Ethnicity	Which of the following describe you, if any? P..	False	MC	MAVR
43	QID124	Accessibility	Which of the following describe you, if any? P..	False	MC	MAVR
44	QID125	MentalHealth	Which of the following describe you, if any? P..	False	MC	MAVR
45	QID131	S6	 Final Qu...	False	DB	TB
46	QID132	SurveyLength	How do you feel about the length of the survey...	False	MC	MAVR

qid	qname	question	force_resp	type	selector
47	QID133	SurveyEase How easy or difficult was this survey to compl...	False	MC	MAVR

```
In [9]: pd.set_option("display.max_columns",85)
pd.set_option("display.max_rows",85)
```

In [10]: df

Out[10]:

RespondId	MainBranch	Employment	Country	US_State	UK_Country
0	1	I am a developer by profession	Independent contractor, freelancer, or self-employed	Slovakia	NaN
1	2	I am a student who is learning to code	Student, full-time	Netherlands	NaN
2	3	I am not primarily a developer, but I write code	Student, full-time	Russian Federation	NaN
3	4	I am a developer by profession	Employed full-time	Austria	NaN
4	5	I am a developer by profession	Independent contractor, freelancer, or self-employed	United Kingdom of Great Britain and Northern Ireland	NaN
5	6	I am a student who is learning to code	Student, part-time	United States of America	Georgia
6	7	I code primarily as a hobby	I prefer not to say	United States of America	New Hampshire
7	8	I am a student who is learning to code	Student, full-time	Malaysia	NaN
8	9	I am a developer by profession	Employed part-time	India	NaN
9	10	I am a developer by profession	Employed full-time	Sweden	NaN
10	11	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern Ireland	England
11	12	I am a developer by profession	Employed full-time	Spain	NaN

RespondID	MainBranch	Employment	Country	US_State	UK_Country	
12	13	I am a developer by profession	Employed full-time	Germany	NaN	NaN
13	14	I am a student who is learning to code	Employed full-time	Peru	NaN	NaN
14	15	I used to be a developer by profession, but no...	Not employed, but looking for work	United Kingdom of Great Britain and Northern I...	NaN	England
15	16	I am a student who is learning to code	Student, full-time	United States of America	Missouri	Second (e.g. Ame...
16	17	I am a developer by profession	Employed full-time	Turkey	NaN	NaN
17	18	I am a developer by profession	Employed full-time	Canada	NaN	NaN
18	19	I am not primarily a developer, but I write co...	I prefer not to say	Singapore	NaN	NaN
19	20	I used to be a developer by profession, but no...	Employed full-time	Brazil	NaN	NaN
20	21	I am a developer by profession	Student, full-time	Germany	NaN	NaN
21	22	I am a student who is learning to code	Student, full-time	Sweden	NaN	NaN
22	23	I am a student who is learning to code	Student, full-time	India	NaN	college student
23	24	I am a developer by profession	Employed full-time	France	NaN	NaN
24	25	I am a developer by profession	Employed full-time	Germany	NaN	NaN

RespondID	MainBranch	Employment	Country	US_State	UK_Country	
25	26	I am not primarily a developer, but I write code	Employed full-time	Germany	NaN	NaN
26	27	I am not primarily a developer, but I write code	Employed full-time	Switzerland	NaN	NaN
27	28	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern Ireland	NaN	England Bachelor (B.A., B.S)
28	29	I am a developer by profession	Independent contractor, freelancer, or self-employed	United Kingdom of Great Britain and Northern Ireland	NaN	England Secondary (e.g. America)
29	30	I am a developer by profession	Employed full-time	Russian Federation	NaN	NaN
30	31	I code primarily as a hobby	I prefer not to say	Malawi	NaN	NaN
31	32	I am a developer by profession	Employed full-time	Israel	NaN	NaN
32	33	I am a developer by profession	Not employed, but looking for work	Poland	NaN	NaN
33	34	I am a developer by profession	Employed full-time	Turkey	NaN	NaN
34	35	I am a developer by profession	Employed full-time	Ukraine	NaN	NaN
35	36	I am a developer by profession	Employed full-time	Germany	NaN	NaN
36	37	I am a developer by profession	Employed full-time	United States of America	District of Columbia	NaN

RespondId	MainBranch	Employment	Country	US_State	UK_Country	
37	38	I am a developer by profession	Employed full-time	United States of America	Massachusetts	NaN college/ student
38	39	I am a student who is learning to code	Not employed, but looking for work	Viet Nam	NaN	NaN Bachelor (B.A., B.S)
39	40	I am a student who is learning to code	Student, part-time	India	NaN	NaN Bachelor (B.A., B.S)
40	41	I am a developer by profession	Employed full-time	Portugal	NaN	NaN Master (M.Eng., M)
41	42	I am not primarily a developer, but I write co...	Employed full-time	France	NaN	NaN Master (M.Eng., M)
...
83397	83398	I used to be a developer by profession, but no...	I prefer not to say	India	NaN	NaN Master (M.Eng., M)
83398	83399	I am a student who is learning to code	Student, part-time	Iran, Islamic Republic of...	NaN	NaN Bachelor (B.A., B.S)
83399	83400	I am a developer by profession	Employed full-time	India	NaN	NaN Bachelor (B.A., B.S)
83400	83401	I am a developer by profession	Independent contractor, freelancer, or self-em...	United States of America	Indiana	NaN Bachelor (B.A., B.S)
83401	83402	I am a developer by profession	Employed full-time	United States of America	Minnesota	NaN Bachelor (B.A., B.S)
83402	83403	I am a developer by profession	Employed full-time	South Korea	NaN	NaN Secondary (e.g. America)

RespondId	MainBranch	Employment	Country	US_State	UK_Country
83403	83404	I used to be a developer by profession, but no...	Employed full-time	Hungary	NaN
83404	83405	I am a developer by profession	Employed full-time	United States of America	California
83405	83406	I am a developer by profession	Employed part-time	China	NaN
83406	83407	I am a student who is learning to code	Student, full-time	India	NaN
83407	83408	I am a developer by profession	Employed full-time	Kyrgyzstan	NaN
83408	83409	I am a student who is learning to code	Independent contractor, freelancer, or self-em...	Kenya	NaN
83409	83410	I am a developer by profession	Employed full-time	Netherlands	NaN
83410	83411	I am a student who is learning to code	Student, part-time	India	NaN
83411	83412	I am a developer by profession	Employed full-time	India	NaN
83412	83413	I am a developer by profession	Independent contractor, freelancer, or self-em...	United States of America	Oregon
83413	83414	I used to be a developer by profession, but no...	Employed full-time	Germany	NaN
83414	83415	I code primarily as a hobby	Student, full-time	United States of America	Maryland

RespondId	MainBranch	Employment	Country	US_State	UK_Country
83415	83416	I am a developer by profession	Employed full-time	Germany	NaN
83416	83417	I am a developer by profession	Employed full-time	United States of America	New Mexico
83417	83418	I am a developer by profession	Student, full-time	India	NaN
83418	83419	I am a student who is learning to code	Student, full-time	Israel	NaN
83419	83420	I am a developer by profession	Employed full-time	Austria	NaN
83420	83421	I am a developer by profession	Employed full-time	France	NaN
83421	83422	I am a developer by profession	Independent contractor, freelancer, or self-em...	Norway	NaN
83422	83423	I am not primarily a developer, but I write co...	Independent contractor, freelancer, or self-em...	Viet Nam	NaN
83423	83424	I am a developer by profession	Employed part-time	Cameroon	NaN
83424	83425	I am a developer by profession	Employed full-time	Germany	NaN
83425	83426	I am a developer by profession	Employed full-time	Finland	NaN
83426	83427	I am a developer by profession	Employed full-time	United States of America	Nebraska

RespondID	MainBranch	Employment	Country	US_State	UK_Country		
83427	83428	I am a developer by profession	Employed full-time	United States of America	Pennsylvania	NaN	Bachelor (B.A., B.S)
83428	83429	I am a developer by profession	Employed full-time	Brazil	NaN	NaN	Master (M.Eng., M)
83429	83430	I code primarily as a hobby	Not employed, but looking for work	United States of America	Washington	NaN	Bachelor (B.A., B.S)
83430	83431	I am a developer by profession	Employed full-time	United States of America	Illinois	NaN	Master (M.Eng., M)
83431	83432	I am a developer by profession	Independent contractor, freelancer, or self-em...	Pakistan	NaN	NaN	Bachelor (B.A., B.S)
83432	83433	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor (B.A., B.S)
83433	83434	I am a developer by profession	Independent contractor, freelancer, or self-em...	Brazil	NaN	NaN	Bachelor (B.A., B.S)
83434	83435	I am a developer by profession	Employed full-time	United States of America	Texas	NaN	Bachelor (B.A., B.S)
83435	83436	I am a developer by profession	Independent contractor, freelancer, or self-em...	Benin	NaN	NaN	Bachelor (B.A., B.S)
83436	83437	I am a developer by profession	Employed full-time	United States of America	New Jersey	NaN	Second (e.g. AmeriSc)
83437	83438	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor (B.A., B.S)
83438	83439	I am a developer by profession	Employed full-time	Brazil	NaN	NaN	Postgraduate degree

83439 rows × 48 columns


```
In [11]: schema_df
```

Out[11]:

	qid	qname	question	force_resp	type	selector
0	QID16	S0	<div>Hel...	False	DB	TB
1	QID12	MetaInfo	Browser Meta Info	False	Meta	Browser
2	QID1	S1	<span style="font-size:22px; font-family: aria...	False	DB	TB
3	QID2	MainBranch	Which of the following options best describes ...	True	MC	SAVR
4	QID24	Employment	Which of the following best describes your cur...	False	MC	MAVR
5	QID6	Country	Where do you live? <span style="font-weight: b...	True	MC	DL
6	QID7	US_State	<p>In which state or territory of the USA do y...	False	MC	DL
7	QID9	UK_Country	In which part of the United Kingdom do you liv...	False	MC	DL
8	QID190	S2	<span style="font-size:22px; font-family: aria...	False	DB	TB
9	QID25	EdLevel	Which of the following best describes the high...	False	MC	SAVR
10	QID149	Age1stCode	At what age did you write your first line of c...	False	MC	MAVR
11	QID276	LearnCode	How did you learn to code? Select all that apply.	False	MC	MAVR
12	QID32	YearsCode	Including any education, how many years have y...	False	MC	DL
13	QID34	YearsCodePro	NOT including education, how many years have y...	False	MC	DL
14	QID31	DevType	Which of the following describes your current ...	False	MC	MAVR
15	QID29	OrgSize	Approximately how many people are employed by ...	False	MC	MAVR
16	QID50	Currency	Which currency do you use day-to-day? If your ...	True	MC	SB
17	QID51	CompTotal	What is your current total compensation (salar...	False	TE	SL
18	QID52	CompFreq	Is that compensation weekly, monthly, or yearly?	False	MC	MAVR
19	QID61	S3	<span style="font-size:22px; font-family: aria...	False	DB	TB
20	QID233	Language	Which programming, scripting, and markup la...	False	Matrix	Likert
21	QID262	Database	Which database environments have you do...	False	Matrix	Likert
22	QID263	Platform	Which cloud platforms have you done ext...	False	Matrix	Likert

	qid	qname	question	force_resp	type	selector
23	QID264	Webframe	Which web frameworks <span st...	False	Matrix	Likert
24	QID265	MiscTech	Which other frameworks and libraries ha...	False	Matrix	Likert
25	QID275	ToolsTech	Which tools have you done ext...	False	Matrix	Likert
26	QID274	NEWCollabTools	Which development environments...	False	Matrix	Likert
27	QID71	OpSys	What is the primary operating system in which ...	False	MC	SAVR
28	QID243	NEWStuck	What do you do when you get stuck on a problem...	False	MC	MAVR
29	QID91	S4	<span style="font-size:22px; font-family: aria...	False	DB	TB
30	QID266	NEWSOSites	Which of the following Stack Overflow sites ha...	False	MC	MAVR
31	QID100	SOVisitFreq	How frequently would you say you visit Stack O...	False	MC	MAVR
32	QID101	SOAccount	Do you have a Stack Overflow account?	False	MC	MAVR
33	QID102	SOPartFreq	How frequently would you say you participate i...	False	MC	MAVR
34	QID106	SOCComm	Do you consider yourself a member of the Stack...	False	MC	MAVR
35	QID267	NEWOtherComms	Are you a member of any other online developer...	False	MC	MAVR
36	QID268	NEWOtherCommsNames	Please name up to 5 other online developer com...	False	Matrix	Likert
37	QID121	S5	<span style="font-size:22px; font-family: aria...	False	DB	TB
38	QID127	Age	What is your age?	False	MC	MAVR
39	QID122	Gender	Which of the following describe you, if any? P...	False	MC	MAVR
40	QID153	Trans	Do you identify as transgender?	False	MC	MAVR
41	QID136	Sexuality	Which of the following describe you, if any? P..	False	MC	MAVR
42	QID126	Ethnicity	Which of the following describe you, if any? P..	False	MC	MAVR
43	QID124	Accessibility	Which of the following describe you, if any? P..	False	MC	MAVR
44	QID125	MentalHealth	Which of the following describe you, if any? P..	False	MC	MAVR
45	QID131	S6	 Final Qu...	False	DB	TB
46	QID132	SurveyLength	How do you feel about the length of the survey...	False	MC	MAVR

qid	qname	question	force_resp	type	selector
47	QID133	SurveyEase How easy or difficult was this survey to compl...	False	MC	MAVR

In [12]: `schema_df.head()`

Out[12]:

qid	qname	question	force_resp	type	selector
0	QID16	S0 <div>Hel...	False	DB	TB
1	QID12	MetalInfo Browser Meta Info	False	Meta	Browser
2	QID1	S1 <span style="font-size:22px; font-family: aria...	False	DB	TB
3	QID2	MainBranch Which of the following options best describes ...	True	MC	SAVR
4	QID24	Employment Which of the following best describes your cur...	False	MC	MAVR

In [13]: `schema_df.tail()`

Out[13]:

qid	qname	question	force_resp	type	selector
43	QID124	Accessibility Which of the following describe you, if any? P...	False	MC	MAVR
44	QID125	MentalHealth Which of the following describe you, if any? P...	False	MC	MAVR
45	QID131	S6 Final Qu...	False	DB	TB
46	QID132	SurveyLength How do you feel about the length of the survey...	False	MC	MAVR
47	QID133	SurveyEase How easy or difficult was this survey to compl...	False	MC	MAVR

In [14]: `#Pandas DataFrames and Series`

```
#created dictionary
people = {
    "first" : ["Corey", "Jane", "John"],
    "last" : ["Schafer", "Doe", "Dean"],
    "email" : ["coreyschafer@gmail.com", "janedoe@gmail.com", "johndean@gmail.com"]
}
```

In [15]: `people["email"]`

Out[15]: `['coreyschafer@gmail.com', 'janedoe@gmail.com', 'johndean@gmail.com']`

```
In [16]: #passing dictionary as dataframe
import pandas as pd
df = pd.DataFrame(people)
df
```

Out[16]:

	first	last	email
0	Corey	Schafer	coreyschafer@gmail.com
1	Jane	Doe	janedoe@gmail.com
2	John	Dean	johndean@gmail.com

```
In [18]: #getting email column in view
df["email"]
```

Out[18]: 0 coreyschafer@gmail.com
1 janedoe@gmail.com
2 johndean@gmail.com
Name: email, dtype: object

```
In [19]: #pulling only required columns in view
df[["last", "email"]]
```

Out[19]:

	last	email
0	Schafer	coreyschafer@gmail.com
1	Doe	janedoe@gmail.com
2	Dean	johndean@gmail.com

```
In [20]: #displaying all column names useful for files with large data headers
df.columns
```

Out[20]: Index(['first', 'last', 'email'], dtype='object')

```
In [21]: #choosing rows by integer Location
df.iloc[0]
```

Out[21]: first Corey
last Schafer
email coreyschafer@gmail.com
Name: 0, dtype: object

```
In [22]: #here selected first two rows
df.iloc[[0,1]]
```

Out[22]:

	first	last	email
0	Corey	Schafer	coreyschafer@gmail.com
1	Jane	Doe	janedoe@gmail.com

In [23]: *#here selected first two rows of 2nd coulmn email*
df.iloc[[0,1],2]

Out[23]: 0 coreyschafer@gmail.com
1 janedoe@gmail.com
Name: email, dtype: object

In [24]: *#using location fuction to select first two rows of 2nd and 3rd coulmn email a nd last name*
df.loc[[0,1],["email", "last"]]

Out[24]:

	email	last
0	coreyschafer@gmail.com	Schafer
1	janedoe@gmail.com	Doe

In [25]: df1 = pd.read_csv("survey_results_public.csv")

In [26]: df1.shape

Out[26]: (83439, 48)

In [27]: df1.columns

Out[27]: Index(['ResponseId', 'MainBranch', 'Employment', 'Country', 'US_State',
'UK_Country', 'EdLevel', 'Age1stCode', 'LearnCode', 'YearsCode',
'YearsCodePro', 'DevType', 'OrgSize', 'Currency', 'CompTotal',
'CompFreq', 'LanguageHaveWorkedWith', 'LanguageWantToWorkWith',
'DatabaseHaveWorkedWith', 'DatabaseWantToWorkWith',
'PlatformHaveWorkedWith', 'PlatformWantToWorkWith',
'WebframeHaveWorkedWith', 'WebframeWantToWorkWith',
'MiscTechHaveWorkedWith', 'MiscTechWantToWorkWith',
'ToolsTechHaveWorkedWith', 'ToolsTechWantToWorkWith',
'NEWCollabToolsHaveWorkedWith', 'NEWCollabToolsWantToWorkWith', 'OpSy
s',
'NEWStuck', 'NEWSOSites', 'SOVisitFreq', 'SOAccount', 'SOPartFreq',
'SOComm', 'NEWOtherComms', 'Age', 'Gender', 'Trans', 'Sexuality',
'Ethnicity', 'Accessibility', 'MentalHealth', 'SurveyLength',
'SurveyEase', 'ConvertedCompYearly'],
dtype='object')

In [34]: *#displaying count of values in the column*
df1["NEWOtherComms"].value_counts()

Out[34]: No 53364
Yes 29464
Name: NEWOtherComms, dtype: int64

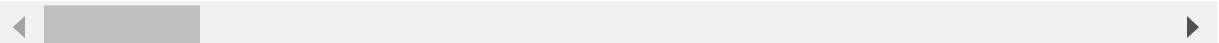
In [38]: `#displaying first 3 values from the list of 3 rows of selected column using loc`
`df1.loc[[0,1,2],"NEWOtherComms"]`

Out[38]: 0 No
1 No
2 Yes
Name: NEWOtherComms, dtype: object

In [42]: `#displaying first 3 values by slicing from the selected columns using Loc`
`df1.loc[0:2,"Employment":"NEWOtherComms"]`

Out[42]:

	Employment	Country	US_State	UK_Country	EdLevel	Age1stCode	LearnCode	Ye...
0	Independent contractor, freelancer, or self-em...	Slovakia	NaN	NaN	Secondary school (e.g. American high school, G...	18 - 24 years	Coding Bootcamp; Other online resources (ex: vi...	
1	Student, full-time	Netherlands	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 17 years	Other online resources (ex: videos, blogs, etc...)	
2	Student, full-time	Russian Federation	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 17 years	Other online resources (ex: videos, blogs, etc...)	



In [61]: `#Indexes - Set, Reset and use Indexes`
`people = {`

```

        "first" : ["Corey", "Jane", "John"],
        "last" : ["Schafer", "Doe", "Dean"],
        "email" : ["coreyschafer@gmail.com", "janedoe@gmail.com", "johndean@gmail.com"]
    }
import pandas as pd
df = pd.DataFrame(people)
df

```

Out[61]:

	first	last	email
0	Corey	Schafer	coreyschafer@gmail.com
1	Jane	Doe	janedoe@gmail.com
2	John	Dean	johndean@gmail.com

In [62]: #Using email as index for the list without changing df
df.set_index("email")

Out[62]:

	first	last
email		
coreyschafer@gmail.com	Corey	Schafer
janedoe@gmail.com	Jane	Doe
johndean@gmail.com	John	Dean

In [63]: df

Out[63]:

	first	last	email
0	Corey	Schafer	coreyschafer@gmail.com
1	Jane	Doe	janedoe@gmail.com
2	John	Dean	johndean@gmail.com

In [64]: #updating the df with custom index of email
df.set_index("email", inplace=True)

In [65]: df

Out[65]:

	first	last
email		
coreyschafer@gmail.com	Corey	Schafer
janedoe@gmail.com	Jane	Doe
johndean@gmail.com	John	Dean

In [66]: df.index

Out[66]: Index(['coreyschafer@gmail.com', 'janedoe@gmail.com', 'johndean@gmail.com'], dtype='object', name='email')

In [67]: df.reset_index(inplace=True)
df

Out[67]:

	email	first	last
0	coreyschafer@gmail.com	Corey	Schafer
1	janedoe@gmail.com	Jane	Doe
2	johndean@gmail.com	John	Dean

```
In [68]: #Indexing use case in cleaning view  
df1 = pd.read_csv("survey_results_public.csv", index_col="ResponseId")  
df1
```

Out[68]:

	MainBranch	Employment	Country	US_State	UK_Country	EdLeve
RespondId						
1	I am a developer by profession	Independent contractor, freelancer, or self-em...	Slovakia	NaN	NaN	Secondary school (e.g. American high school, G...
2	I am a student who is learning to code	Student, full-time	Netherlands	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
3	I am not primarily a developer, but I write co...	Student, full-time	Russian Federation	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
4	I am a developer by profession	Employed full-time	Austria	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
5	I am a developer by profession	Independent contractor, freelancer, or self-em...	United Kingdom of Great Britain and Northern I...	NaN	England	Master's degree (M.A., M.S M.Eng., MBA, etc
6	I am a student who is learning to code	Student, part-time	United States of America	Georgia	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
7	I code primarily as a hobby	I prefer not to say	United States of America	New Hampshire	NaN	Secondary school (e.g. American high school, G...
8	I am a student who is learning to code	Student, full-time	Malaysia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
9	I am a developer by profession	Employed part-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
10	I am a developer by profession	Employed full-time	Sweden	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
11	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Bachelor's degree (B.A., B.S., B.Eng etc

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondentID						
12	I am a developer by profession	Employed full-time	Spain	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
13	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
14	I am a student who is learning to code	Employed full-time	Peru	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
15	I used to be a developer by profession, but no...	Not employed, but looking for work	United Kingdom of Great Britain and Northern I...	NaN	England	Bachelor's degree (B.A., B.S., B.Eng etc)
16	I am a student who is learning to code	Student, full-time	United States of America	Missouri	NaN	Secondary school (e.g. American high school, G...
17	I am a developer by profession	Employed full-time	Turkey	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
18	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
19	I am not primarily a developer, but I write code...	I prefer not to say	Singapore	NaN	NaN	Other doctoral degree (Ph.D Ed.D., etc)
20	I used to be a developer by profession, but no...	Employed full-time	Brazil	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
21	I am a developer by profession	Student, full-time	Germany	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
22	I am a student who is learning to code	Student, full-time	Sweden	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
23	I am a student who is learning to code	Student, full-time	India	NaN	NaN	Some college/university study without earning .
24	I am a developer by profession	Employed full-time	France	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondentID						
25	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
26	I am not primarily a developer, but I write code	Employed full-time	Germany	NaN	NaN	Other doctoral degree (Ph.D Ed.D., etc
27	I am not primarily a developer, but I write code	Employed full-time	Switzerland	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
28	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Bachelor's degree (B.A., B.S., B.Eng etc
29	I am a developer by profession	Independent contractor, freelancer, or self-em...	United Kingdom of Great Britain and Northern I...	NaN	England	Secondary school (e.g. American high school, G.
30	I am a developer by profession	Employed full-time	Russian Federation	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
31	I code primarily as a hobby	I prefer not to say	Malawi	NaN	NaN	Something else
32	I am a developer by profession	Employed full-time	Israel	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
33	I am a developer by profession	Not employed, but looking for work	Poland	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
34	I am a developer by profession	Employed full-time	Turkey	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
35	I am a developer by profession	Employed full-time	Ukraine	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondId						
36	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
37	I am a developer by profession	Employed full-time	United States of America	District of Columbia	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
38	I am a developer by profession	Employed full-time	United States of America	Massachusetts	NaN	Som college/universit study without earning .
39	I am a student who is learning to code	Not employed, but looking for work	Viet Nam	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
40	I am a student who is learning to code	Student, part-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
41	I am a developer by profession	Employed full-time	Portugal	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
42	I am not primarily a developer, but I write co...	Employed full-time	France	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
...
83398	I used to be a developer by profession, but no...	I prefer not to say	India	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83399	I am a student who is learning to code	Student, part-time	Iran, Islamic Republic of...	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83400	I am a developer by profession	Employed full-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83401	I am a developer by profession	Independent contractor, freelancer, or self-em...	United States of America	Indiana	NaN	Bachelor's degree (B.A., B.S., B.Eng etc

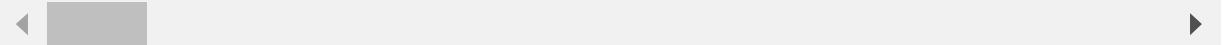
	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondentID						
83402	I am a developer by profession	Employed full-time	United States of America	Minnesota	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83403	I am a developer by profession	Employed full-time	South Korea	NaN	NaN	Secondary school (e.g. American high school, G.
83404	I used to be a developer by profession, but no...	Employed full-time	Hungary	NaN	NaN	Som college/university study without earning .
83405	I am a developer by profession	Employed full-time	United States of America	California	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83406	I am a developer by profession	Employed part-time	China	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83407	I am a student who is learning to code	Student, full-time	India	NaN	NaN	Secondary school (e.g. American high school, G.
83408	I am a developer by profession	Employed full-time	Kyrgyzstan	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83409	I am a student who is learning to code	Independent contractor, freelancer, or self-employed...	Kenya	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83410	I am a developer by profession	Employed full-time	Netherlands	NaN	NaN	Other doctoral degree (Ph.D Ed.D., etc)
83411	I am a student who is learning to code	Student, part-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83412	I am a developer by profession	Employed full-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83413	I am a developer by profession	Independent contractor, freelancer, or self-employed...	United States of America	Oregon	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondentID						
83414	I used to be a developer by profession, but no...	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83415	I code primarily as a hobby	Student, full-time	United States of America	Maryland	NaN	Secondary school (e.g. American high school, G.
83416	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83417	I am a developer by profession	Employed full-time	United States of America	New Mexico	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83418	I am a developer by profession	Student, full-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83419	I am a student who is learning to code	Student, full-time	Israel	NaN	NaN	Primary/elementary school
83420	I am a developer by profession	Employed full-time	Austria	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83421	I am a developer by profession	Employed full-time	France	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83422	I am a developer by profession	Independent contractor, freelancer, or self-employed	Norway	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83423	I am not primarily a developer, but I write code...	Independent contractor, freelancer, or self-employed	Viet Nam	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83424	I am a developer by profession	Employed part-time	Cameroon	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83425	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc

RespondentID	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
83426	I am a developer by profession	Employed full-time	Finland	NaN	NaN	Secondary school (e.g. American high school, G...
83427	I am a developer by profession	Employed full-time	United States of America	Nebraska	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83428	I am a developer by profession	Employed full-time	United States of America	Pennsylvania	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83429	I am a developer by profession	Employed full-time	Brazil	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83430	I code primarily as a hobby	Not employed, but looking for work	United States of America	Washington	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83431	I am a developer by profession	Employed full-time	United States of America	Illinois	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83432	I am a developer by profession	Independent contractor, freelancer, or self-em...	Pakistan	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83433	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83434	I am a developer by profession	Independent contractor, freelancer, or self-em...	Brazil	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83435	I am a developer by profession	Employed full-time	United States of America	Texas	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83436	I am a developer by profession	Independent contractor, freelancer, or self-em...	Benin	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83437	I am a developer by profession	Employed full-time	United States of America	New Jersey	NaN	Secondary school (e.g. American high school, G...

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondId						
83438	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83439	I am a developer by profession	Employed full-time	Brazil	NaN	NaN	Professional degree (JD, MC etc

83439 rows × 7 columns



```
In [70]: #display 1st respondent from the data  
df1.loc[1]
```

```
Out[70]: MainBranch I am a developer by profes
          sion
          Employment Independent contractor, freelancer, or self-e
          m...
          Country Slov
          akia
          US_State
          NaN
          UK_Country
          NaN
          EdLevel Secondary school (e.g. American high school,
          G...
          Age1stCode 18 - 24 y
          ears
          LearnCode Coding Bootcamp;Other online resources (ex: v
          i...
          YearsCode
          NaN
          YearsCodePro
          NaN
          DevType Developer, mo
          bile
          OrgSize 20 to 99 emplo
          yees
          Currency EUR European
          Euro
          CompTotal
          4800
          CompFreq Mon
          thly
          LanguageHaveWorkedWith C++;HTML/CSS;JavaScript;Objective-C;PHP;S
          swift
          LanguageWantToWorkWith S
          swift
          DatabaseHaveWorkedWith PostgreSQL;SQ
          Lite
          DatabaseWantToWorkWith SQ
          Lite
          PlatformHaveWorkedWith
          NaN
          PlatformWantToWorkWith
          NaN
          WebframeHaveWorkedWith Laravel;Sym
          fony
          WebframeWantToWorkWith
          NaN
          MiscTechHaveWorkedWith
          NaN
          MiscTechWantToWorkWith
          NaN
          ToolsTechHaveWorkedWith
          NaN
          ToolsTechWantToWorkWith
          NaN
          NEWCollabToolsHaveWorkedWith PHPStorm;X
          code
          NEWCollabToolsWantToWorkWith Atom;X
```

```

code                                     M
OpSys
acOS
NEWStuck      Call a coworker or friend;Visit Stack Overflo
w...
NEWSOSites
flow
SOVisitFreq
day
SOAccount
Yes
SOPartFreq
ekly
SOComm
tely
NEWOtherComms
No
Age          25-34 years
old
Gender
Man
Trans
No
Sexuality
xual
Ethnicity
cent
Accessibility
bove
MentalHealth
bove
SurveyLength
ngth
SurveyEase
Easy
ConvertedCompYearly
2268
Name: 1, dtype: object

```

6

```
In [72]: schema_df = pd.read_csv("survey_results_schema.csv",index_col="qname")  
schema_df
```

Out[72]:

	qid	question	force_resp	type	selector
	qname				
S0	QID16	<div>Hel...	False	DB	TB
MetalInfo	QID12	Browser Meta Info	False	Meta	Browser
S1	QID1		False	DB	TB
MainBranch	QID2	Which of the following options best describes ...	True	MC	SAVR
Employment	QID24	Which of the following best describes your cur...	False	MC	MAVR
Country	QID6	Where do you live? <span style="font-weight: b...	True	MC	DL
US_State	QID7	<p>In which state or territory of the USA do y...	False	MC	DL
UK_Country	QID9	In which part of the United Kingdom do you liv...	False	MC	DL
S2	QID190		False	DB	TB
EdLevel	QID25	Which of the following best describes the high...	False	MC	SAVR
Age1stCode	QID149	At what age did you write your first line of c...	False	MC	MAVR
LearnCode	QID276	How did you learn to code? Select all that apply.	False	MC	MAVR
YearsCode	QID32	Including any education, how many years have y...	False	MC	DL
YearsCodePro	QID34	NOT including education, how many years have y...	False	MC	DL
DevType	QID31	Which of the following describes your current ...	False	MC	MAVR
OrgSize	QID29	Approximately how many people are employed by ...	False	MC	MAVR
Currency	QID50	Which currency do you use day-to-day? If your ...	True	MC	SB
CompTotal	QID51	What is your current total compensation (salar...	False	TE	SL
CompFreq	QID52	Is that compensation weekly, monthly, or yearly?	False	MC	MAVR
S3	QID61		False	DB	TB
Language	QID233	Which programming, scripting, and markup la...	False	Matrix	Likert
Database	QID262	Which database environments have you do...	False	Matrix	Likert
Platform	QID263	Which cloud platforms have you done ext...	False	Matrix	Likert

	qid	question	force_resp	type	selector
qname					
Webframe	QID264	Which web frameworks<span style="font-size:22px; font-family: ari...	False	Matrix	Likert
MiscTech	QID265	Which other frameworks and libraries ha...	False	Matrix	Likert
ToolsTech	QID275	Which tools have you done ext...	False	Matrix	Likert
NEWCollabTools	QID274	Which development environments...	False	Matrix	Likert
OpSys	QID71	What is the primary operating system in which ...	False	MC	SAVR
NEWStuck	QID243	What do you do when you get stuck on a problem...	False	MC	MAVR
S4	QID91	<span style="font-size:22px; font-family: ari...	False	DB	TB
NEWSOSites	QID266	Which of the following Stack Overflow sites ha...	False	MC	MAVR
SOVisitFreq	QID100	How frequently would you say you visit Stack O...	False	MC	MAVR
SOAccount	QID101	Do you have a Stack Overflow account?	False	MC	MAVR
SOPartFreq	QID102	How frequently would you say you participate i...	False	MC	MAVR
SOComm	QID106	Do you consider yourself a member of the Stack...	False	MC	MAVR
NEWOtherComms	QID267	Are you a member of any other online developer...	False	MC	MAVR
NEWOtherCommsNames	QID268	Please name up to 5 other online developer com...	False	Matrix	Likert
S5	QID121	<span style="font-size:22px; font-family: ari...	False	DB	TB
Age	QID127	What is your age?	False	MC	MAVR
Gender	QID122	Which of the following describe you, if any? P...	False	MC	MAVR
Trans	QID153	Do you identify as transgender?	False	MC	MAVR
Sexuality	QID136	Which of the following describe you, if any? P...	False	MC	MAVR
Ethnicity	QID126	Which of the following describe you, if any? P...	False	MC	MAVR
Accessibility	QID124	Which of the following describe you, if any? P...	False	MC	MAVR
MentalHealth	QID125	Which of the following describe you, if any? P...	False	MC	MAVR
S6	QID131	Final Qu...	False	DB	TB

qid	question	force_resp	type	selector
qname				
SurveyLength QID132	How do you feel about the length of the survey...	False	MC	MAVR
SurveyEase QID133	How easy or difficult was this survey to compl...	False	MC	MAVR

In [73]: #To display the row value and column header text in larger data
schema_df.loc["NEWOtherComms"]

Out[73]: qid QID267
question Are you a member of any other online developer...
force_resp False
type MC
selector MAVR
Name: NEWOtherComms, dtype: object

In [74]: #To understand better the row value and column header text in Larger data
schema_df.loc["NEWOtherComms", "question"]

Out[74]: 'Are you a member of any other online developer communities?'

```
In [76]: #sorting index  
schema_df.sort_index()
```

Out[76]:

	qid	question	force_resp	type	selector
	qname				
Accessibility	QID124	Which of the following describe you, if any? P...	False	MC	MAVR
Age	QID127	What is your age?	False	MC	MAVR
Age1stCode	QID149	At what age did you write your first line of c...	False	MC	MAVR
CompFreq	QID52	Is that compensation weekly, monthly, or yearly?	False	MC	MAVR
CompTotal	QID51	What is your current total compensation (salar...	False	TE	SL
Country	QID6	Where do you live? <span style="font-weight: b...	True	MC	DL
Currency	QID50	Which currency do you use day-to-day? If your ...	True	MC	SB
Database	QID262	Which database environments have you do...	False	Matrix	Likert
DevType	QID31	Which of the following describes your current ...	False	MC	MAVR
EdLevel	QID25	Which of the following best describes the high...	False	MC	SAVR
Employment	QID24	Which of the following best describes your cur...	False	MC	MAVR
Ethnicity	QID126	Which of the following describe you, if any? P...	False	MC	MAVR
Gender	QID122	Which of the following describe you, if any? P...	False	MC	MAVR
Language	QID233	Which programming, scripting, and markup la...	False	Matrix	Likert
LearnCode	QID276	How did you learn to code? Select all that apply.	False	MC	MAVR
MainBranch	QID2	Which of the following options best describes ...	True	MC	SAVR
MentalHealth	QID125	Which of the following describe you, if any? P...	False	MC	MAVR
MetaInfo	QID12	Browser Meta Info	False	Meta	Browser
MiscTech	QID265	Which other frameworks and libraries ha...	False	Matrix	Likert
NEWCollabTools	QID274	Which development environments...	False	Matrix	Likert
NEWOtherComms	QID267	Are you a member of any other online developer...	False	MC	MAVR
NEWOtherCommsNames	QID268	Please name up to 5 other online developer com...	False	Matrix	Likert
NEWSOSites	QID266	Which of the following Stack Overflow sites ha...	False	MC	MAVR

	qid	question	force_resp	type	selector
qname					
NEWstuck	QID243	What do you do when you get stuck on a problem...	False	MC	MAVR
OpSys	QID71	What is the primary operating system in which ...	False	MC	SAVR
OrgSize	QID29	Approximately how many people are employed by ...	False	MC	MAVR
Platform	QID263	Which cloud platforms have you done ext...	False	Matrix	Likert
S0	QID16	<div> Hel...	False	DB	TB
S1	QID1	<span style="font-size:22px; font-family: aria...	False	DB	TB
S2	QID190	<span style="font-size:22px; font-family: aria...	False	DB	TB
S3	QID61	<span style="font-size:22px; font-family: aria...	False	DB	TB
S4	QID91	<span style="font-size:22px; font-family: aria...	False	DB	TB
S5	QID121	<span style="font-size:22px; font-family: aria...	False	DB	TB
S6	QID131	 Final Qu...	False	DB	TB
SOAccount	QID101	Do you have a Stack Overflow account?	False	MC	MAVR
SOCComm	QID106	Do you consider yourself a member of the Stack...	False	MC	MAVR
SOPartFreq	QID102	How frequently would you say you participate i...	False	MC	MAVR
SOVisitFreq	QID100	How frequently would you say you visit Stack O...	False	MC	MAVR
Sexuality	QID136	Which of the following describe you, if any? P...	False	MC	MAVR
SurveyEase	QID133	How easy or difficult was this survey to compl...	False	MC	MAVR
SurveyLength	QID132	How do you feel about the length of the survey...	False	MC	MAVR
ToolsTech	QID275	Which tools have you done ext...	False	Matrix	Likert
Trans	QID153	Do you identify as transgender?	False	MC	MAVR
UK_Country	QID9	In which part of the United Kingdom do you liv...	False	MC	DL
US_State	QID7	<p>In which state or territory of the USA do y...	False	MC	DL
Webframe	QID264	Which web frameworks <span st...	False	Matrix	Likert

qname	qid	question	force_resp	type	selector
YearsCode	QID32	Including any education, how many years have y...	False	MC	DL
YearsCodePro	QID34	NOT including education, how many years have y...	False	MC	DL

```
In [78]: #sorting index and updating in dataframe  
schema_df.sort_index(inplace=True)  
schema_df
```

Out[78]:

	qid	question	force_resp	type	selector
	qname				
Accessibility	QID124	Which of the following describe you, if any? P...	False	MC	MAVR
Age	QID127	What is your age?	False	MC	MAVR
Age1stCode	QID149	At what age did you write your first line of c...	False	MC	MAVR
CompFreq	QID52	Is that compensation weekly, monthly, or yearly?	False	MC	MAVR
CompTotal	QID51	What is your current total compensation (salar...	False	TE	SL
Country	QID6	Where do you live? <span style="font-weight: b...	True	MC	DL
Currency	QID50	Which currency do you use day-to-day? If your ...	True	MC	SB
Database	QID262	Which database environments have you do...	False	Matrix	Likert
DevType	QID31	Which of the following describes your current ...	False	MC	MAVR
EdLevel	QID25	Which of the following best describes the high...	False	MC	SAVR
Employment	QID24	Which of the following best describes your cur...	False	MC	MAVR
Ethnicity	QID126	Which of the following describe you, if any? P...	False	MC	MAVR
Gender	QID122	Which of the following describe you, if any? P...	False	MC	MAVR
Language	QID233	Which programming, scripting, and markup la...	False	Matrix	Likert
LearnCode	QID276	How did you learn to code? Select all that apply.	False	MC	MAVR
MainBranch	QID2	Which of the following options best describes ...	True	MC	SAVR
MentalHealth	QID125	Which of the following describe you, if any? P...	False	MC	MAVR
MetaInfo	QID12	Browser Meta Info	False	Meta	Browser
MiscTech	QID265	Which other frameworks and libraries ha...	False	Matrix	Likert
NEWCollabTools	QID274	Which development environments...	False	Matrix	Likert
NEWOtherComms	QID267	Are you a member of any other online developer...	False	MC	MAVR
NEWOtherCommsNames	QID268	Please name up to 5 other online developer com...	False	Matrix	Likert
NEWSOSites	QID266	Which of the following Stack Overflow sites ha...	False	MC	MAVR

	qid	question	force_resp	type	selector
qname					
NEWstuck	QID243	What do you do when you get stuck on a problem...	False	MC	MAVR
OpSys	QID71	What is the primary operating system in which ...	False	MC	SAVR
OrgSize	QID29	Approximately how many people are employed by ...	False	MC	MAVR
Platform	QID263	Which cloud platforms have you done ext...	False	Matrix	Likert
S0	QID16	<div> Hel...	False	DB	TB
S1	QID1	<span style="font-size:22px; font-family: aria...	False	DB	TB
S2	QID190	<span style="font-size:22px; font-family: aria...	False	DB	TB
S3	QID61	<span style="font-size:22px; font-family: aria...	False	DB	TB
S4	QID91	<span style="font-size:22px; font-family: aria...	False	DB	TB
S5	QID121	<span style="font-size:22px; font-family: aria...	False	DB	TB
S6	QID131	 Final Qu...	False	DB	TB
SOAccount	QID101	Do you have a Stack Overflow account?	False	MC	MAVR
SOComm	QID106	Do you consider yourself a member of the Stack...	False	MC	MAVR
SOPartFreq	QID102	How frequently would you say you participate i...	False	MC	MAVR
SOVisitFreq	QID100	How frequently would you say you visit Stack O...	False	MC	MAVR
Sexuality	QID136	Which of the following describe you, if any? P...	False	MC	MAVR
SurveyEase	QID133	How easy or difficult was this survey to compl...	False	MC	MAVR
SurveyLength	QID132	How do you feel about the length of the survey...	False	MC	MAVR
ToolsTech	QID275	Which tools have you done ext...	False	Matrix	Likert
Trans	QID153	Do you identify as transgender?	False	MC	MAVR
UK_Country	QID9	In which part of the United Kingdom do you liv...	False	MC	DL
US_State	QID7	<p>In which state or territory of the USA do y...	False	MC	DL
Webframe	QID264	Which web frameworks <span st...	False	Matrix	Likert

qid	question	force_resp	type	selector
qname				
YearsCode	QID32 Including any education, how many years have you...	False	MC	DL
YearsCodePro	QID34 NOT including education, how many years have you...	False	MC	DL

In [82]: *#filtering data using condition as variable to filter rows and columns*
 filt = schema_df["qid"] == "QID132"
 schema_df[filt]

Out[82]:

qid	question	force_resp	type	selector
qname				
SurveyLength	QID132 How do you feel about the length of the survey...	False	MC	MAVR

In [84]: *#filtering data in dataframe using condition to filter rows and columns without creating variable*
 schema_df[schema_df["qid"] == "QID132"]

Out[84]:

qid	question	force_resp	type	selector
qname				
SurveyLength	QID132 How do you feel about the length of the survey...	False	MC	MAVR

In [85]: *#filtering data using loc function*
 schema_df.loc[filt]

Out[85]:

qid	question	force_resp	type	selector
qname				
SurveyLength	QID132 How do you feel about the length of the survey...	False	MC	MAVR

In [90]: *#filtering data using loc function to just select a required column*
 schema_df.loc[filt, "question"]

Out[90]:

```
qname
SurveyLength    How do you feel about the length of the survey...
Name: question, dtype: object
```

```
In [96]: #filtering data using And operator
filt = (schema_df["force_resp"] == True) & (schema_df["type"] == "MC")
schema_df.loc[filt]
```

Out[96]:

	qid	question	force_resp	type	selector
qname					
Country	QID6	Where do you live? <span style="font-weight: b...	True	MC	DL
Currency	QID50	Which currency do you use day-to-day? If your ...	True	MC	SB
MainBranch	QID2	Which of the following options best describes ...	True	MC	SAVR

```
In [97]: #filtering data using Or **/** operator
filt = (schema_df["force_resp"] == True) | (schema_df["type"] == "MC")
schema_df.loc[filt]
```

Out[97]:

	qid	question	force_resp	type	selector
	qname				
Accessibility	QID124	Which of the following describe you, if any? P...	False	MC	MAVR
Age	QID127	What is your age?	False	MC	MAVR
Age1stCode	QID149	At what age did you write your first line of c...	False	MC	MAVR
CompFreq	QID52	Is that compensation weekly, monthly, or yearly?	False	MC	MAVR
Country	QID6	Where do you live? <span style="font-weight: b...	True	MC	DL
Currency	QID50	Which currency do you use day-to-day? If your ...	True	MC	SB
DevType	QID31	Which of the following describes your current ...	False	MC	MAVR
EdLevel	QID25	Which of the following best describes the high...	False	MC	SAVR
Employment	QID24	Which of the following best describes your cur...	False	MC	MAVR
Ethnicity	QID126	Which of the following describe you, if any? P...	False	MC	MAVR
Gender	QID122	Which of the following describe you, if any? P...	False	MC	MAVR
LearnCode	QID276	How did you learn to code? Select all that apply.	False	MC	MAVR
MainBranch	QID2	Which of the following options best describes ...	True	MC	SAVR
MentalHealth	QID125	Which of the following describe you, if any? P...	False	MC	MAVR
NEWOtherComms	QID267	Are you a member of any other online developer...	False	MC	MAVR
NEWSOSites	QID266	Which of the following Stack Overflow sites ha...	False	MC	MAVR
NEWStuck	QID243	What do you do when you get stuck on a problem...	False	MC	MAVR
OpSys	QID71	What is the primary operating system in which ...	False	MC	SAVR
OrgSize	QID29	Approximately how many people are employed by ...	False	MC	MAVR
SOAccount	QID101	Do you have a Stack Overflow account?	False	MC	MAVR
SOCComm	QID106	Do you consider yourself a member of the Stack...	False	MC	MAVR
SOPartFreq	QID102	How frequently would you say you participate i...	False	MC	MAVR
SOVisitFreq	QID100	How frequently would you say you visit Stack O...	False	MC	MAVR

qid	question	force_resp	type	selector
qname				
Sexuality QID136	Which of the following describe you, if any? P...	False	MC	MAVR
SurveyEase QID133	How easy or difficult was this survey to compl...	False	MC	MAVR
SurveyLength QID132	How do you feel about the length of the survey...	False	MC	MAVR
Trans QID153	Do you identify as transgender?	False	MC	MAVR
UK_Country QID9	In which part of the United Kingdom do you liv...	False	MC	DL
US_State QID7	<p>In which state or territory of the USA do y...	False	MC	DL
YearsCode QID32	Including any education, how many years have y...	False	MC	DL
YearsCodePro QID34	NOT including education, how many years have y...	False	MC	DL

```
In [98]: #filtering data using Or **/** operator and adding ~ sign to get the opposite result of the filter added
filt = (schema_df["force_resp"] == True) | (schema_df["type"] == "MC")
schema_df.loc[~filt]
```

Out[98]:

		qid	question	force_resp	type	selector
	qname					
	CompTotal	QID51	What is your current total compensation (salar...	False	TE	SL
	Database	QID262	Which database environments have you do...	False	Matrix	Likert
	Language	QID233	Which programming, scripting, and markup la...	False	Matrix	Likert
	MetalInfo	QID12	Browser Meta Info	False	Meta	Browser
	MiscTech	QID265	Which other frameworks and libraries ha...	False	Matrix	Likert
	NEWCollabTools	QID274	Which development environments...	False	Matrix	Likert
	NEWOtherCommsNames	QID268	Please name up to 5 other online developer com...	False	Matrix	Likert
	Platform	QID263	Which cloud platforms have you done ext...	False	Matrix	Likert
	S0	QID16	<div> Hel...	False	DB	TB
	S1	QID1	<span style="font-size:22px; font-family: aria...	False	DB	TB
	S2	QID190	<span style="font-size:22px; font-family: aria...	False	DB	TB
	S3	QID61	<span style="font-size:22px; font-family: aria...	False	DB	TB
	S4	QID91	<span style="font-size:22px; font-family: aria...	False	DB	TB
	S5	QID121	<span style="font-size:22px; font-family: aria...	False	DB	TB
	S6	QID131	 Final Qu...	False	DB	TB
	ToolsTech	QID275	Which tools have you done ext...	False	Matrix	Likert
	Webframe	QID264	Which web frameworks <span st...	False	Matrix	Likert

```
In [99]: #Loading data to df
df1 = pd.read_csv("survey_results_public.csv", index_col="ResponseId")
df1
```

Out[99]:

	MainBranch	Employment	Country	US_State	UK_Country	EdLeve
RespondId						
1	I am a developer by profession	Independent contractor, freelancer, or self-em...	Slovakia	NaN	NaN	Secondary school (e.g. American high school, G...
2	I am a student who is learning to code	Student, full-time	Netherlands	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
3	I am not primarily a developer, but I write co...	Student, full-time	Russian Federation	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
4	I am a developer by profession	Employed full-time	Austria	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
5	I am a developer by profession	Independent contractor, freelancer, or self-em...	United Kingdom of Great Britain and Northern I...	NaN	England	Master's degree (M.A., M.S M.Eng., MBA, etc
6	I am a student who is learning to code	Student, part-time	United States of America	Georgia	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
7	I code primarily as a hobby	I prefer not to say	United States of America	New Hampshire	NaN	Secondary school (e.g. American high school, G...
8	I am a student who is learning to code	Student, full-time	Malaysia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
9	I am a developer by profession	Employed part-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
10	I am a developer by profession	Employed full-time	Sweden	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
11	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Bachelor's degree (B.A., B.S., B.Eng etc

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondentID						
12	I am a developer by profession	Employed full-time	Spain	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
13	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
14	I am a student who is learning to code	Employed full-time	Peru	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
15	I used to be a developer by profession, but no...	Not employed, but looking for work	United Kingdom of Great Britain and Northern I...	NaN	England	Bachelor's degree (B.A., B.S., B.Eng etc)
16	I am a student who is learning to code	Student, full-time	United States of America	Missouri	NaN	Secondary school (e.g. American high school, G...
17	I am a developer by profession	Employed full-time	Turkey	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
18	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
19	I am not primarily a developer, but I write code...	I prefer not to say	Singapore	NaN	NaN	Other doctoral degree (Ph.D Ed.D., etc)
20	I used to be a developer by profession, but no...	Employed full-time	Brazil	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
21	I am a developer by profession	Student, full-time	Germany	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
22	I am a student who is learning to code	Student, full-time	Sweden	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
23	I am a student who is learning to code	Student, full-time	India	NaN	NaN	Some college/university study without earning .
24	I am a developer by profession	Employed full-time	France	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondentID						
25	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
26	I am not primarily a developer, but I write code	Employed full-time	Germany	NaN	NaN	Other doctoral degree (Ph.D Ed.D., etc
27	I am not primarily a developer, but I write code	Employed full-time	Switzerland	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
28	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Bachelor's degree (B.A., B.S., B.Eng etc
29	I am a developer by profession	Independent contractor, freelancer, or self-em...	United Kingdom of Great Britain and Northern I...	NaN	England	Secondary school (e.g. American high school, G.
30	I am a developer by profession	Employed full-time	Russian Federation	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
31	I code primarily as a hobby	I prefer not to say	Malawi	NaN	NaN	Something else
32	I am a developer by profession	Employed full-time	Israel	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
33	I am a developer by profession	Not employed, but looking for work	Poland	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
34	I am a developer by profession	Employed full-time	Turkey	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
35	I am a developer by profession	Employed full-time	Ukraine	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondId						
36	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
37	I am a developer by profession	Employed full-time	United States of America	District of Columbia	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
38	I am a developer by profession	Employed full-time	United States of America	Massachusetts	NaN	Som college/universit study without earning .
39	I am a student who is learning to code	Not employed, but looking for work	Viet Nam	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
40	I am a student who is learning to code	Student, part-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
41	I am a developer by profession	Employed full-time	Portugal	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
42	I am not primarily a developer, but I write co...	Employed full-time	France	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
...
83398	I used to be a developer by profession, but no...	I prefer not to say	India	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83399	I am a student who is learning to code	Student, part-time	Iran, Islamic Republic of...	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83400	I am a developer by profession	Employed full-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83401	I am a developer by profession	Independent contractor, freelancer, or self-em...	United States of America	Indiana	NaN	Bachelor's degree (B.A., B.S., B.Eng etc

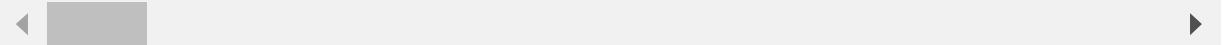
	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondentID						
83402	I am a developer by profession	Employed full-time	United States of America	Minnesota	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83403	I am a developer by profession	Employed full-time	South Korea	NaN	NaN	Secondary school (e.g. American high school, G.
83404	I used to be a developer by profession, but no...	Employed full-time	Hungary	NaN	NaN	Som college/university study without earning .
83405	I am a developer by profession	Employed full-time	United States of America	California	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83406	I am a developer by profession	Employed part-time	China	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83407	I am a student who is learning to code	Student, full-time	India	NaN	NaN	Secondary school (e.g. American high school, G.
83408	I am a developer by profession	Employed full-time	Kyrgyzstan	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83409	I am a student who is learning to code	Independent contractor, freelancer, or self-employed...	Kenya	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83410	I am a developer by profession	Employed full-time	Netherlands	NaN	NaN	Other doctoral degree (Ph.D Ed.D., etc)
83411	I am a student who is learning to code	Student, part-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83412	I am a developer by profession	Employed full-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83413	I am a developer by profession	Independent contractor, freelancer, or self-employed...	United States of America	Oregon	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondentID						
83414	I used to be a developer by profession, but no...	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83415	I code primarily as a hobby	Student, full-time	United States of America	Maryland	NaN	Secondary school (e.g. American high school, G.
83416	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83417	I am a developer by profession	Employed full-time	United States of America	New Mexico	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83418	I am a developer by profession	Student, full-time	India	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83419	I am a student who is learning to code	Student, full-time	Israel	NaN	NaN	Primary/elementary school
83420	I am a developer by profession	Employed full-time	Austria	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83421	I am a developer by profession	Employed full-time	France	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83422	I am a developer by profession	Independent contractor, freelancer, or self-employed	Norway	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83423	I am not primarily a developer, but I write code...	Independent contractor, freelancer, or self-employed	Viet Nam	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83424	I am a developer by profession	Employed part-time	Cameroon	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83425	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc

RespondentID	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
83426	I am a developer by profession	Employed full-time	Finland	NaN	NaN	Secondary school (e.g. American high school, G...
83427	I am a developer by profession	Employed full-time	United States of America	Nebraska	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83428	I am a developer by profession	Employed full-time	United States of America	Pennsylvania	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83429	I am a developer by profession	Employed full-time	Brazil	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83430	I code primarily as a hobby	Not employed, but looking for work	United States of America	Washington	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83431	I am a developer by profession	Employed full-time	United States of America	Illinois	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
83432	I am a developer by profession	Independent contractor, freelancer, or self-em...	Pakistan	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83433	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83434	I am a developer by profession	Independent contractor, freelancer, or self-em...	Brazil	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83435	I am a developer by profession	Employed full-time	United States of America	Texas	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83436	I am a developer by profession	Independent contractor, freelancer, or self-em...	Benin	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83437	I am a developer by profession	Employed full-time	United States of America	New Jersey	NaN	Secondary school (e.g. American high school, G...

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondId						
83438	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83439	I am a developer by profession	Employed full-time	Brazil	NaN	NaN	Professional degree (JD, MC etc

83439 rows × 47 columns



```
In [106]: #filtering dataframe for rows with Compensation column value
high_salary=(df1["ConvertedCompYearly"]>70000)
df1.loc[high_salary]
```

Out[106]:

	MainBranch	Employment	Country	US_State	UK_Country	EdLeve
RespondId						
13	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
19	I am not primarily a developer, but I write co...	I prefer not to say	Singapore	NaN	NaN	Other doctora degree (Ph.D Ed.D., etc
25	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
27	I am not primarily a developer, but I write co...	Employed full-time	Switzerland	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
32	I am a developer by profession	Employed full-time	Israel	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
37	I am a developer by profession	Employed full-time	United States of America	District of Columbia	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
38	I am a developer by profession	Employed full-time	United States of America	Massachusetts	NaN	Som college/universit study without earning .
63	I am not primarily a developer, but I write co...	Employed full-time	United States of America	New York	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
65	I am not primarily a developer, but I write co...	Independent contractor, freelancer, or self-em...	United States of America	New York	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
68	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Som college/universit study without earning .
70	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Bachelor's degree (B.A., B.S., B.Eng etc

RespondentID	MainBranch	Employment	Country	US_State	UK_Country	EducationLevel
76	I am a developer by profession	Employed full-time	United States of America	Minnesota	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
78	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Other doctoral degree (Ph.D Ed.D., etc)
81	I am a developer by profession	Independent contractor, freelancer, or self-employed	Uzbekistan	NaN	NaN	Primary/elementary school
87	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Something else
88	I am a developer by profession	Employed full-time	United States of America	Maryland	NaN	Other doctoral degree (Ph.D Ed.D., etc)
92	I am not primarily a developer, but I write code	Employed full-time	Netherlands	NaN	NaN	Primary/elementary school
97	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
101	I am a developer by profession	Independent contractor, freelancer, or self-employed	France	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
106	I am a developer by profession	Employed full-time	Switzerland	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
119	I am a developer by profession	Employed full-time	United States of America	Iowa	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
125	I am not primarily a developer, but I write code	Employed full-time	Israel	NaN	NaN	Som college/university study without earning .

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondentID						
130	I am a developer by profession	Independent contractor, freelancer, or self-employed	United States of America	Arkansas	NaN	Master's degree (M.A., M.S, M.Eng., MBA, etc)
132	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Something else
135	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
144	I am a developer by profession	Employed full-time	United States of America	Maryland	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
146	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Master's degree (M.A., M.S, M.Eng., MBA, etc)
147	I am a developer by profession	Employed full-time	Russian Federation	NaN	NaN	Professional degree (JD, MC etc)
152	I am a developer by profession	Employed full-time	Israel	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
153	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Bachelor's degree (B.A., B.S., B.Eng etc)
154	I am not primarily a developer, but I write code	Employed full-time	United States of America	South Carolina	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
156	I am a developer by profession	Employed full-time	United States of America	Pennsylvania	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
158	I am a developer by profession	Employed full-time	Lithuania	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
161	I am not primarily a developer, but I write code	Employed full-time	Israel	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
162	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Other doctoral degree (Ph.D, Ed.D., etc)

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondId						
171	I am not primarily a developer, but I write code...	Employed full-time	Canada	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
175	I am a developer by profession	Independent contractor, freelancer, or self-employed	Denmark	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
185	I am a developer by profession	Employed full-time	Romania	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
187	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Master's degree (M.A., M.S M.Eng., MBA, etc
193	I am a developer by profession	Employed full-time	Ireland	NaN	NaN	Som college/university study without earning .
200	I am a developer by profession	Employed full-time	United States of America	Nebraska	NaN	Associate degree (A.A., A.S., etc
207	I am not primarily a developer, but I write code...	Employed full-time	United States of America	Massachusetts	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc
...
83285	I am a developer by profession	Employed part-time	United States of America	Michigan	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83286	I am a developer by profession	Employed full-time	United States of America	Washington	NaN	Bachelor's degree (B.A., B.S., B.Eng etc
83289	I am a developer by profession	Employed full-time	Finland	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc

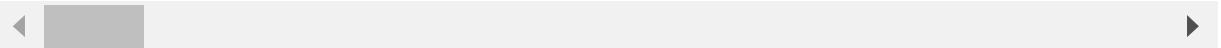
RespondentID	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
83296	I am a developer by profession	Independent contractor, freelancer, or self-employed	United States of America	Texas	NaN	Master's degree (M.A., M.S. M.Eng., MBA, etc)
83297	I am a developer by profession	Employed full-time	France	NaN	NaN	NaN
83307	I am a developer by profession	Employed full-time	United States of America	California	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83309	I am a developer by profession	Employed full-time	Switzerland	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83311	I am not primarily a developer, but I write code	Employed full-time	United States of America	Washington	NaN	Professional degree (JD, MC etc)
83313	I am a developer by profession	Employed full-time	United States of America	Texas	NaN	Som college/university study without earning .
83318	I am a developer by profession	Employed full-time	United States of America	Illinois	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83321	I am a developer by profession	Employed full-time	United States of America	California	NaN	NaN
83322	I am a developer by profession	Employed full-time	United States of America	Georgia	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83324	I am a developer by profession	Employed full-time	United States of America	Utah	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83331	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Som college/university study without earning .
83332	I am a developer by profession	Employed full-time	Russian Federation	NaN	NaN	Master's degree (M.A., M.S. M.Eng., MBA, etc)
83335	I am a developer by profession	Employed full-time	United States of America	Washington	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondId						
83341	I am a developer by profession	Employed full-time	United States of America	Washington	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83342	I am a developer by profession	Employed full-time	United States of America	Washington	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
83343	I am a developer by profession	Employed full-time	United States of America	Iowa	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83355	I am a developer by profession	Employed full-time	United States of America	California	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
83362	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83364	I am a developer by profession	Employed full-time	United States of America	New Mexico	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
83370	I am a developer by profession	Employed full-time	United States of America	California	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83373	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
83375	I am a developer by profession	Employed full-time	United States of America	Illinois	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83377	I am a developer by profession	Employed full-time	United States of America	North Carolina	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83378	I am a developer by profession	Employed full-time	United States of America	Virginia	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83379	I am a developer by profession	Employed full-time	United States of America	California	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel
RespondId						
83381	I am a developer by profession	Employed full-time	United Kingdom of Great Britain and Northern I...	NaN	England	Primary/elementary school
83388	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Som college/university study without earning .
83390	I am a developer by profession	Employed full-time	United States of America	Montana	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83405	I am a developer by profession	Employed full-time	United States of America	California	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83410	I am a developer by profession	Employed full-time	Netherlands	NaN	NaN	Other doctorate degree (Ph.D Ed.D., etc)
83420	I am a developer by profession	Employed full-time	Austria	NaN	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
83422	I am a developer by profession	Independent contractor, freelancer, or self-employed	Norway	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83425	I am a developer by profession	Employed full-time	Germany	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83428	I am a developer by profession	Employed full-time	United States of America	Pennsylvania	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83431	I am a developer by profession	Employed full-time	United States of America	Illinois	NaN	Master's degree (M.A., M.S M.Eng., MBA, etc)
83433	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)
83435	I am a developer by profession	Employed full-time	United States of America	Texas	NaN	Bachelor's degree (B.A., B.S., B.Eng etc)

MainBranch	Employment	Country	US_State	UK_Country	EdLevel	
RespondId						
83437	I am a developer by profession	Employed full-time	United States of America	New Jersey	NaN	Secondary school (e.g. American high school, G.
83438	I am a developer by profession	Employed full-time	Canada	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng etc

18793 rows × 47 columns



```
In [108]: #filtering dataframe for rows with Compensation and only required column for better view
high_salary=(df1["ConvertedCompYearly"]>70000)
df1.loc[high_salary,[ "Country", "LanguageHaveWorkedWith", "ConvertedCompYearly"]]

```

Out[108]:

RespondId	Country	LanguageHaveWorkedWith	ConvertedCompYearly
13	Germany	C;C++;Java;Perl;Ruby	77290.0
19	Singapore	C++;Python	160932.0
25	Germany	C++;HTML/CSS;Java;JavaScript;Kotlin;Node.js;Ty...	77831.0
27	Switzerland	C++;Python	81319.0
32	Israel	Bash/Shell;Go;Java;Node.js;Python;Scala;SQL	122580.0
37	United States of America	Assembly;C;Java;Kotlin;Rust	103000.0
38	United States of America	Go	300000.0
63	United States of America	C#;HTML/CSS;JavaScript;Node.js;PowerShell;Pyth...	130000.0
65	United States of America	HTML/CSS;JavaScript;Python	500000.0
68	Canada	C#;VBA	71850.0
70	United Kingdom of Great Britain and Northern I...	HTML/CSS;JavaScript;SQL;TypeScript	129266.0
76	United States of America	HTML/CSS;JavaScript;PHP	105000.0
78	Canada	HTML/CSS;Python;R	151263.0
81	Uzbekistan	HTML/CSS;JavaScript;Node.js	105024.0
87	Canada	C#;SQL;TypeScript	95295.0
88	United States of America	Bash/Shell;C#;HTML/CSS;Julia;Matlab;Python	100000.0
92	Netherlands	Bash/Shell;C#;JavaScript;Node.js;PowerShell;Py...	108098.0
97	Germany	Bash/Shell;Clojure;Haskell;Java;JavaScript;Kot...	518868.0
101	France	Dart;JavaScript;Node.js	151337.0
106	Switzerland	Bash/Shell;C#;HTML/CSS;JavaScript;PowerShell;S...	134176.0
119	United States of America	C#;HTML/CSS;JavaScript;SQL;VBA	140000.0
125	Israel	Bash/Shell;Python	101916.0
130	United States of America	C#;HTML/CSS;JavaScript;Node.js;PHP;PowerShell;SQL	200000.0
132	Germany	C#;PowerShell;SQL	596700.0

RespondId	Country	LanguageHaveWorkedWith	ConvertedCompYearly
135	Canada	Go;JavaScript;Node.js	105884.0
144	United States of America	C#;F#;SQL	200000.0
146	Germany	Bash/Shell;C;Dart;Go;HTML/CSS;JavaScript;Node....	97288.0
147	Russian Federation	C++;Java;Kotlin;Objective-C;Swift	75492.0
152	Israel	C#,Java;Python	87552.0
153	United Kingdom of Great Britain and Northern I...	C#;HTML/CSS;PowerShell;SQL	70047.0
154	United States of America	Bash/Shell;C;C++;Go;HTML/CSS;Java;JavaScript;M...	98500.0
156	United States of America	C++;HTML/CSS;JavaScript;Node.js;Perl;PHP;SQL	115000.0
158	Lithuania	C++;Go;JavaScript;Node.js;Python;TypeScript	103408.0
161	Israel	Assembly;Python	105072.0
162	United Kingdom of Great Britain and Northern I...	Matlab	71093.0
171	Canada	Python;R	98321.0
175	Denmark	Bash/Shell;Groovy;HTML/CSS;Java;JavaScript;Rub...	115784.0
185	Romania	C#;HTML/CSS;JavaScript;PHP;SQL	81420.0
187	United Kingdom of Great Britain and Northern I...	HTML/CSS;Java;JavaScript;Node.js;TypeScript	84019.0
193	Ireland	Bash/Shell;Go;HTML/CSS;JavaScript;Ruby;SQL;Typ...	91883.0
200	United States of America	C#;HTML/CSS;SQL;TypeScript	90000.0
207	United States of America	Nan	193000.0
...
83285	United States of America	C#;HTML/CSS;JavaScript;Node.js;PHP;Python;SQL;...	120000.0
83286	United States of America	Bash/Shell;Groovy;HTML/CSS;JavaScript;Node.js;...	228000.0

RespondId	Country	LanguageHaveWorkedWith	ConvertedCompYearly
83289	Finland	HTML/CSS;JavaScript;Node.js	71340.0
83296	United States of America	Bash/Shell;HTML/CSS;JavaScript;Node.js;Ruby;SQL;TypeScript	75000.0
83297	France	F#	81074.0
83307	United States of America	C;C++;Go;HTML/CSS;JavaScript;Python;Ruby;SQL	205000.0
83309	Switzerland	HTML/CSS;Java;Kotlin;PHP;Python;R;Ruby;SQL	121980.0
83311	United States of America	Bash/Shell;HTML/CSS;JavaScript;Python;SQL	100000.0
83313	United States of America	HTML/CSS;JavaScript;Ruby	200000.0
83318	United States of America	Java;Node.js;SQL	137000.0
83321	United States of America	Ruby	111000.0
83322	United States of America	Bash/Shell;Python;SQL	140000.0
83324	United States of America	HTML/CSS;Scala;SQL;TypeScript	100000.0
83331	Australia	JavaScript;Python;Rust	222476.0
83332	Russian Federation	C#,JavaScript;Python	75864.0
83335	United States of America	HTML/CSS;JavaScript	145000.0
83341	United States of America	C#,JavaScript;Node.js;SQL	145000.0
83342	United States of America	C#;HTML/CSS;Java;JavaScript;Node.js;PowerShell;TypeScript	150000.0
83343	United States of America	C#;HTML/CSS;JavaScript	95000.0
83355	United States of America	Java	180000.0
83362	Mexico	HTML/CSS;JavaScript;Node.js;PHP;SQL;TypeScript	94250.0
83364	United States of America	Bash/Shell;C++;JavaScript;PowerShell;Python	94000.0

RespondId	Country	LanguageHaveWorkedWith	ConvertedCompYearly
83370	United States of America	HTML/CSS;Objective-C;Swift	370000.0
83373	Australia	Bash/Shell;HTML/CSS;Java;JavaScript;Kotlin;Node.js;Perl;Python;SQL;TypeScript	123598.0
83375	United States of America	Bash/Shell;C#;C++;HTML/CSS;JavaScript;Node.js;Perl;Python;SQL;TypeScript	90000.0
83377	United States of America	Bash/Shell;HTML/CSS;JavaScript;Python;Rust;SQL	89500.0
83378	United States of America	Bash/Shell;C#;Go;HTML/CSS;JavaScript;Node.js;Perl;Python;SQL;TypeScript	190000.0
83379	United States of America	Bash/Shell;C++;Python	112000.0
83381	United Kingdom of Great Britain and Northern I...	Bash/Shell;Clojure;Java;JavaScript;Node.js	109871.0
83388	Canada	Bash/Shell;Go;HTML/CSS;JavaScript;Node.js;Perl;Python;SQL	189078.0
83390	United States of America	C#;Python;SQL	120000.0
83405	United States of America	HTML/CSS;Java;JavaScript;PHP;Python;Swift	85000.0
83410	Netherlands	Julia;Matlab;Python	86478.0
83420	Austria	Groovy;HTML/CSS;Java;JavaScript;Node.js;PHP;Po... tgreSQL;Python;SQL;TypeScript	83236.0
83422	Norway	Bash/Shell;HTML/CSS;JavaScript;Node.js;Python;SQL	88474.0
83425	Germany	Bash/Shell;C;Go;Java;JavaScript;Perl;SQL	129718.0
83428	United States of America	Java;Python	4300000.0
83431	United States of America	APL;Clojure;LISP;Python;Ruby;SQL;TypeScript	125000.0
83433	Canada	Ruby	80169.0
83435	United States of America	Clojure;Kotlin;SQL	160500.0
83437	United States of America	Groovy;Java;Python	90000.0
83438	Canada	Bash/Shell;JavaScript;Node.js;Python	816816.0

18793 rows × 3 columns



```
In [112]: #filtering dataframe for rows with Compensation and only required column with  
#additional condition of Country where  
#is in the listed items  
countries = ["Mexico", "Australia"]  
filt = df1["Country"].isin(countries)  
df1.loc[filt]
```

Out[112]:

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel	Age1
RespondId							
210	I am not primarily a developer, but I write code...	Employed full-time	Australia	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	11 - 18
743	I am a developer by profession	Employed part-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	5 - 18
992	None of these	Student, full-time	Australia	NaN	NaN	Secondary school (e.g. American high school, G...	11 - 18
1036	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 18
1093	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	18 - 25
1264	I am not primarily a developer, but I write code...	Employed full-time	Mexico	NaN	NaN	Professional degree (JD, MD, etc.)	11 - 18
1594	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	5 - 18
1779	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Some college/university study without earning ...	25 - <25
2099	I am a student who is learning to code	Employed full-time	Mexico	NaN	NaN	Some college/university study without earning ...	11 - 18
2172	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Other doctoral degree (Ph.D., Ed.D., etc.)	25 - <25
2329	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Some college/university study without earning ...	11 - 18
2368	I code primarily as a hobby	Student, full-time	Australia	NaN	NaN	Some college/university study without earning ...	11 - 18

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel	Age1
RespondId							
2671	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	18 - 24
2843	I code primarily as a hobby	Student, full-time	Australia	NaN	NaN	Secondary school (e.g. American high school, G...	11 - 17
3044	I used to be a developer by profession, but no...	Not employed, but looking for work	Australia	NaN	NaN	Something else	25 - 64
3058	I am a developer by profession	Independent contractor, freelancer, or self-em...	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	25 - 64
3084	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Professional degree (JD, MD, etc.)	5 - 17
3240	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Some college/university study without earning ...	18 - 24
3292	I am a developer by profession	I prefer not to say	Australia	NaN	NaN	Other doctoral degree (Ph.D., Ed.D., etc.)	5 - 17
3606	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	25 - 64
3634	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	Young
3672	I am a student who is learning to code	Student, full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 17
3708	I am a student who is learning to code	Employed part-time	Mexico	NaN	NaN	Secondary school (e.g. American high school, G...	11 - 17
3781	I am a developer by profession	Student, full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 17

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel	Age1
RespondId							
3938	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
3987	I am not primarily a developer, but I write co...	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
4087	I am a developer by profession	Independent contractor, freelancer, or self-em...	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
4113	I am a student who is learning to code	Employed part-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
4260	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
4276	I am a developer by profession	Independent contractor, freelancer, or self-em...	Mexico	NaN	NaN	Professional degree (JD, MD, etc.)	11 - '
4285	I am a developer by profession	Independent contractor, freelancer, or self-em...	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
4426	I am a student who is learning to code	Student, part-time	Australia	NaN	NaN	Secondary school (e.g. American high school, G...	5 - '
4432	I code primarily as a hobby	Independent contractor, freelancer, or self-em...	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
4552	I am a student who is learning to code	Student, full-time	Mexico	NaN	NaN	Some college/university study without earning ...	11 - '
4574	I am a developer by profession	Employed part-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	18 - '
4595	I am a developer by profession	Independent contractor, freelancer, or self-em...	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	5 - '

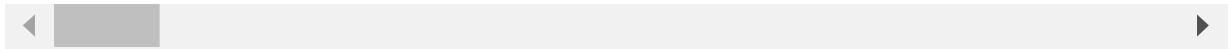
	MainBranch	Employment	Country	US_State	UK_Country	EdLevel	Age1
RespondId							
4743	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	18 - 24
4831	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	11 - 17
4893	I used to be a developer by profession, but no...	Employed full-time	Mexico	NaN	NaN	Some college/university study without earning ...	18 - 24
4957	I am a student who is learning to code	Not employed, but looking for work	Australia	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	11 - 17
5028	I am a student who is learning to code	Student, full-time	Mexico	NaN	NaN	Some college/university study without earning ...	11 - 17
5097	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 17
...
82058	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	18 - 24
82068	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Other doctoral degree (Ph.D., Ed.D., etc.)	11 - 17
82072	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 17
82083	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	5 - 10
82091	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 17
82098	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	11 - 17

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel	Age1
RespondId							
82113	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	11 - 12
82114	I am a student who is learning to code	Student, full-time	Australia	NaN	NaN	Secondary school (e.g. American high school, G...	5 - 12
82123	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 12
82129	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	18 - 22
82138	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Associate degree (A.A., A.S., etc.)	11 - 12
82141	I am not primarily a developer, but I write code...	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 12
82155	I am not primarily a developer, but I write code...	Employed full-time	Australia	NaN	NaN	Associate degree (A.A., A.S., etc.)	11 - 12
82179	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - 12
82181	I code primarily as a hobby	Employed full-time	Australia	NaN	NaN	Some college/university study without earning ...	11 - 12
82187	I am a developer by profession	Independent contractor, freelancer, or self-employed	Mexico	NaN	NaN	Professional degree (JD, MD, etc.)	18 - 22
82189	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	18 - 22
82190	I code primarily as a hobby	Student, full-time	Australia	NaN	NaN	Primary/elementary school	5 - 12

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel	Age1
RespondId							
82206	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
82217	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	5 - '
82243	I am a student who is learning to code	Student, full-time	Australia	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	18 - '
82244	I am not primarily a developer, but I write co...	Employed full-time	Australia	NaN	NaN	Other doctoral degree (Ph.D., Ed.D., etc.)	55 - 6
82273	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
82285	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
82300	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	25 - 3
82311	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	25 - 3
82324	I used to be a developer by profession, but no...	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '
82333	I am a student who is learning to code	Student, full-time	Australia	NaN	NaN	Primary/elementary school	11 - '
82426	I am not primarily a developer, but I write co...	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	18 - 2
82519	I am a student who is learning to code	Student, full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 - '

	MainBranch	Employment	Country	US_State	UK_Country	EdLevel	Age1
RespondId							
82693	I am a student who is learning to code	Independent contractor, freelancer, or self-em...	Australia	NaN	NaN	Some college/university study without earning ...	11 -
82897	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	5 -
82986	I am a developer by profession	Not employed, and not looking for work	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 -
83090	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 -
83164	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Some college/university study without earning ...	11 -
83187	I am not primarily a developer, but I write co...	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	25 -
83279	I am not primarily a developer, but I write co...	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 -
83331	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Some college/university study without earning ...	11 -
83336	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	11 -
83362	I am a developer by profession	Employed full-time	Mexico	NaN	NaN	Bachelor's degree (B.A., B.S., B.Eng., etc.)	11 -
83373	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	11 -
83383	I am a developer by profession	Employed full-time	Australia	NaN	NaN	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	11 -

2341 rows × 47 columns



```
In [114]: #Creating a Filter for data using string contains operator for a cell values in a column
filt = df1["LanguageHaveWorkedWith"].str.contains("Python")
df1["LanguageHaveWorkedWith"]
```

Out[114]: ResponseId

```
1      C++;HTML/CSS;JavaScript;Objective-C;PHP;Swift  
2                      JavaScript;Python  
3                      Assembly;C;Python;R;Rust  
4                      JavaScript;TypeScript  
5                      Bash/Shell;HTML/CSS;Python;SQL  
6      C;C#;C++;HTML/CSS;Java;JavaScript;Node.js;Power...  
7                      HTML/CSS;JavaScript  
8                      HTML/CSS;JavaScript;PHP;Ruby;SQL;TypeScript  
9                      HTML/CSS;JavaScript  
10                     C++;Python  
11                     C#;TypeScript  
12                     Bash/Shell;HTML/CSS;JavaScript;Node.js;SQL;Typ...  
13                     C;C++;Java;Perl;Ruby  
14                     C;C++;JavaScript;Python;R;SQL  
15                     JavaScript;SQL  
16                     Bash/Shell;Python  
17                     C#;HTML/CSS;Java;JavaScript;Node.js  
18                     Bash/Shell;HTML/CSS;JavaScript;PHP;Ruby;SQL  
19                     C++;Python  
20                     C;C++;HTML/CSS;JavaScript;Matlab;Node.js;PHP;P...  
21                     Java;Python  
22                     JavaScript;Python  
23                     C#;HTML/CSS;Python  
24                     JavaScript;Python  
25                     C++;HTML/CSS;Java;JavaScript;Kotlin;Node.js;Ty...  
26                     HTML/CSS;Julia;Python;R;SQL  
27                     C++;Python  
28                     Python  
29                     Bash/Shell;Haskell;JavaScript;SQL;TypeScript  
30                     Delphi;Java;SQL  
31                     HTML/CSS;JavaScript;Node.js;Python;TypeScript  
32                     Bash/Shell;Go;Java;Node.js;Python;Scala;SQL  
33                     C++;HTML/CSS;JavaScript;PHP;SQL  
34                     Assembly;C;C#;C++;HTML/CSS;Java;JavaScript;Mat...  
35                     Bash/Shell;C;C#;C++;Java  
36                     C;C++;Java;Python  
37                     Assembly;C;Java;Kotlin;Rust  
38                     Go  
39                     Bash/Shell;C#;Dart;HTML/CSS;JavaScript;TypeScript  
40                     C;C#;C++;HTML/CSS;JavaScript;Node.js;Python  
41                     C;C#;C++;Java;Kotlin;Python  
42                     Bash/Shell;C#;C++;Python  
        ...  
83398                 C;C#;C++;HTML/CSS;Java;JavaScript;PHP;SQL  
83399                 C++;Matlab;Node.js;Python;SQL  
83400                 HTML/CSS;JavaScript;TypeScript  
83401                 Elixir;HTML/CSS;JavaScript;Ruby;TypeScript  
83402                 Bash/Shell;F#;HTML/CSS;JavaScript;Node.js;SQL  
83403                 C;Dart;HTML/CSS;Java;JavaScript;Kotlin;Node.js  
83404                 Bash/Shell;C#;HTML/CSS;Java;JavaScript;Kotlin;...  
83405                 HTML/CSS;Java;JavaScript;PHP;Python;Swift  
83406                 Bash/Shell;C;C++;Dart;Go;HTML/CSS;Java;JavaScr...  
83407                 C;C++;Python  
83408                 HTML/CSS;JavaScript;TypeScript  
83409                 HTML/CSS;JavaScript;PHP  
83410                 Julia;Matlab;Python
```

```
83411          C++;JavaScript;Python;TypeScript
83412                      Java;JavaScript;SQL
83413 Bash/Shell;Clojure;HTML/CSS;Java;JavaScript;Ko...
83414 Bash/Shell;C#;HTML/CSS;Java;JavaScript;Matlab;...
83415                           HTML/CSS;Python
83416                           C;C#;Java
83417                           C++
83418 Bash/Shell;C;C++;Java;SQL
83419 Bash/Shell;C#;C++;Java;JavaScript;Kotlin;PHP;P...
83420 Groovy;HTML/CSS;Java;JavaScript;Node.js;PHP;Po...
83421 Bash/Shell;C#;C++;Go;Groovy;HTML/CSS;Java;Java...
83422 Bash/Shell;HTML/CSS;JavaScript;Node.js;Python;...
83423                           HTML/CSS;JavaScript;PHP;Ruby
83424                           HTML/CSS;JavaScript;PHP;Python;SQL
83425 Bash/Shell;C;Go;Java;JavaScript;Perl;SQL
83426                           HTML/CSS;JavaScript;Node.js;TypeScript
83427 Bash/Shell;HTML/CSS;Java;JavaScript;Python;SQL
83428                           Java;Python
83429 Bash/Shell;Node.js;TypeScript
83430                           HTML/CSS;PHP;PowerShell;Python;SQL;VBA
83431 APL;Clojure;LISP;Python;Ruby;SQL;TypeScript
83432 C#;Dart;HTML/CSS;Java;JavaScript;Kotlin;Node.j...
83433                           Ruby
83434 Java;JavaScript;Kotlin;Objective-C;TypeScript
83435                           Clojure;Kotlin;SQL
83436                           NaN
83437 Groovy;Java;Python
83438 Bash/Shell;JavaScript;Node.js;Python
83439 Delphi;Elixir;HTML/CSS;Java;JavaScript
```

Name: LanguageHaveWorkedWith, Length: 83439, dtype: object

In [115]: #Creating Filter for data using string contains operator for a cell values in a column and excluding NaN
filt = df1["LanguageHaveWorkedWith"].str.contains("Python", na=False)
df1["LanguageHaveWorkedWith"]

Out[115]: ResponseId

```
1 C++;HTML/CSS;JavaScript;Objective-C;PHP;Swift  
2 JavaScript;Python  
3 Assembly;C;Python;R;Rust  
4 JavaScript;TypeScript  
5 Bash/Shell;HTML/CSS;Python;SQL  
6 C;C#;C++;HTML/CSS;Java;JavaScript;Node.js;Power...  
7 HTML/CSS;JavaScript  
8 HTML/CSS;JavaScript;PHP;Ruby;SQL;TypeScript  
9 HTML/CSS;JavaScript  
10 C++;Python  
11 C#;TypeScript  
12 Bash/Shell;HTML/CSS;JavaScript;Node.js;SQL;Typ...  
13 C;C++;Java;Perl;Ruby  
14 C;C++;JavaScript;Python;R;SQL  
15 JavaScript;SQL  
16 Bash/Shell;Python  
17 C#;HTML/CSS;Java;JavaScript;Node.js  
18 Bash/Shell;HTML/CSS;JavaScript;PHP;Ruby;SQL  
19 C++;Python  
20 C;C++;HTML/CSS;JavaScript;Matlab;Node.js;PHP;P...  
21 Java;Python  
22 JavaScript;Python  
23 C#;HTML/CSS;Python  
24 JavaScript;Python  
25 C++;HTML/CSS;Java;JavaScript;Kotlin;Node.js;Ty...  
26 HTML/CSS;Julia;Python;R;SQL  
27 C++;Python  
28 Python  
29 Bash/Shell;Haskell;JavaScript;SQL;TypeScript  
30 Delphi;Java;SQL  
31 HTML/CSS;JavaScript;Node.js;Python;TypeScript  
32 Bash/Shell;Go;Java;Node.js;Python;Scala;SQL  
33 C++;HTML/CSS;JavaScript;PHP;SQL  
34 Assembly;C;C#;C++;HTML/CSS;Java;JavaScript;Mat...  
35 Bash/Shell;C;C#;C++;Java  
36 C;C++;Java;Python  
37 Assembly;C;Java;Kotlin;Rust  
38 Go  
39 Bash/Shell;C#;Dart;HTML/CSS;JavaScript;TypeScript  
40 C;C#;C++;HTML/CSS;JavaScript;Node.js;Python  
41 C;C#;C++;Java;Kotlin;Python  
42 Bash/Shell;C#;C++;Python  
...  
83398 C;C#;C++;HTML/CSS;Java;JavaScript;PHP;SQL  
83399 C++;Matlab;Node.js;Python;SQL  
83400 HTML/CSS;JavaScript;TypeScript  
83401 Elixir;HTML/CSS;JavaScript;Ruby;TypeScript  
83402 Bash/Shell;F#;HTML/CSS;JavaScript;Node.js;SQL  
83403 C;Dart;HTML/CSS;Java;JavaScript;Kotlin;Node.js  
83404 Bash/Shell;C#;HTML/CSS;Java;JavaScript;Kotlin;...  
83405 HTML/CSS;Java;JavaScript;PHP;Python;Swift  
83406 Bash/Shell;C;C++;Dart;Go;HTML/CSS;Java;JavaScr...  
83407 C;C++;Python  
83408 HTML/CSS;JavaScript;TypeScript  
83409 HTML/CSS;JavaScript;PHP  
83410 Julia;Matlab;Python
```

```
83411          C++;JavaScript;Python;TypeScript
83412          Java;JavaScript;SQL
83413 Bash/Shell;Clojure;HTML/CSS;Java;JavaScript;Ko...
83414 Bash/Shell;C#;HTML/CSS;Java;JavaScript;Matlab;...
83415                      HTML/CSS;Python
83416                      C;C#;Java
83417                      C++
83418 Bash/Shell;C;C++;Java;SQL
83419 Bash/Shell;C#;C++;Java;JavaScript;Kotlin;PHP;P...
83420 Groovy;HTML/CSS;Java;JavaScript;Node.js;PHP;Po...
83421 Bash/Shell;C#;C++;Go;Groovy;HTML/CSS;Java;Java...
83422 Bash/Shell;HTML/CSS;JavaScript;Node.js;Python;...
83423                      HTML/CSS;JavaScript;PHP;Ruby
83424                      HTML/CSS;JavaScript;PHP;Python;SQL
83425 Bash/Shell;C;Go;Java;JavaScript;Perl;SQL
83426                      HTML/CSS;JavaScript;Node.js;TypeScript
83427 Bash/Shell;HTML/CSS;Java;JavaScript;Python;SQL
83428                      Java;Python
83429 Bash/Shell;Node.js;TypeScript
83430                      HTML/CSS;PHP;PowerShell;Python;SQL;VBA
83431 APL;Clojure;LISP;Python;Ruby;SQL;TypeScript
83432 C#;Dart;HTML/CSS;Java;JavaScript;Kotlin;Node.j...
83433                      Ruby
83434 Java;JavaScript;Kotlin;Objective-C;TypeScript
83435                      Clojure;Kotlin;SQL
83436                      NaN
83437 Groovy;Java;Python
83438 Bash/Shell;JavaScript;Node.js;Python
83439 Delphi;Elixir;HTML/CSS;Java;JavaScript
```

Name: LanguageHaveWorkedWith, Length: 83439, dtype: object

```
In [117]: #Filtering data using string contains operator for a cell values in a column and excluding NaN  
filt = df1["LanguageHaveWorkedWith"].str.contains("Python", na=False)  
df1.loc[filt, "LanguageHaveWorkedWith"]
```

Out[117]: ResponseId

2 JavaScript;Python
3 Assembly;C;Python;R;Rust
5 Bash/Shell;HTML/CSS;Python;SQL
6 C;C#;C++;HTML/CSS;Java;JavaScript;Node.js;Power...
10 C++;Python
14 C;C++;JavaScript;Python;R;SQL
16 Bash/Shell;Python
19 C++;Python
20 C;C++;HTML/CSS;JavaScript;Matlab;Node.js;PHP;P...
21 Java;Python
22 JavaScript;Python
23 C#;HTML/CSS;Python
24 JavaScript;Python
26 HTML/CSS;Julia;Python;R;SQL
27 C++;Python
28 Python
31 HTML/CSS;JavaScript;Node.js;Python;TypeScript
32 Bash/Shell;Go;Java;Node.js;Python;Scala;SQL
36 C;C++;Java;Python
40 C;C#;C++;HTML/CSS;JavaScript;Node.js;Python
41 C;C#;C++;Java;Kotlin;Python
42 Bash/Shell;C#;C++;Python
43 Bash/Shell;C;C#;C++;HTML/CSS;Java;JavaScript;K...
44 C;C#;C++;HTML/CSS;Java;JavaScript;Python;SQL
45 HTML/CSS;JavaScript;Node.js;Python;R;SQL;TypeS...
50 C;HTML/CSS;Java;JavaScript;Kotlin;Node.js;Pyth...
53 HTML/CSS;JavaScript;Node.js;Python;TypeScript
56 Bash/Shell;HTML/CSS;Java;Python;SQL;TypeScript
59 Bash/Shell;HTML/CSS;JavaScript;Python;SQL
60 Bash/Shell;C;JavaScript;Python;SQL
61 HTML/CSS;JavaScript;Node.js;PHP;Python;SQL
62 Python;R;VBA
63 C#;HTML/CSS;JavaScript;Node.js;PowerShell;Pyth...
65 HTML/CSS;JavaScript;Python
66 HTML/CSS;PHP;Python;SQL
67 HTML/CSS;Java;JavaScript;Matlab;Python;R;Scala...
71 Bash/Shell;C;C++;Matlab;PowerShell;Python
74 Assembly;Bash/Shell;C;C#;PHP;PowerShell;Python...
75 Bash/Shell;HTML/CSS;Java;JavaScript;Kotlin;Nod...
77 Bash/Shell;C#;Dart;Delphi;Go;HTML/CSS;Java;Jav...
78 HTML/CSS;Python;R
80 C#;Go;Java;Python
...
83354 C++;HTML/CSS;JavaScript;Python;Ruby
83357 Bash/Shell;C;C#;C++;Dart;Go;Java;JavaScript;Ju...
83359 HTML/CSS;Java;JavaScript;Node.js;Python;SQL;Ty...
83360 Python
83361 APL;Assembly;Bash/Shell;C;C#;C++;Clojure;Cryst...
83363 Bash/Shell;C;C++;HTML/CSS;Java;JavaScript;Pyth...
83364 Bash/Shell;C++;JavaScript;PowerShell;Python
83366 Bash/Shell;Go;HTML/CSS;PowerShell;Python;SQL;VBA
83371 Bash/Shell;HTML/CSS;JavaScript;Node.js;PHP;Pyt...
83373 Bash/Shell;HTML/CSS;Java;JavaScript;Kotlin;Nod...
83374 Java;JavaScript;Python;TypeScript
83375 Bash/Shell;C#;C++;HTML/CSS;JavaScript;Node.js;...
83377 Bash/Shell;HTML/CSS;JavaScript;Python;Rust;SQL

```

83379                                Bash/Shell;C++;Python
83380      C#;HTML/CSS;JavaScript;Node.js;Python;SQL;Type...
83383                                C#;Go;Python;R;Scala;SQL
83384                                Dart;Python
83385      C;C#;C++;HTML/CSS;Java;JavaScript;Node.js;Pyth...
83386                                Python;SQL
83389      C#;C++;Go;Java;JavaScript;Node.js;Python;Rust;...
83390                                C#;Python;SQL
83392      Bash/Shell;C;C#;Dart;HTML/CSS;JavaScript;Python
83393                                Bash/Shell;Julia;PowerShell;Python;R
83396                                HTML/CSS;JavaScript;PHP;Python;SQL
83399                                C++;Matlab;Node.js;Python;SQL
83405                                HTML/CSS;Java;JavaScript;PHP;Python;Swift
83406      Bash/Shell;C;C++;Dart;Go;HTML/CSS;Java;JavaScr...
83407                                C;C++;Python
83410                                Julia;Matlab;Python
83411                                C++;JavaScript;Python;TypeScript
83415                                HTML/CSS;Python
83419      Bash/Shell;C#;C++;Java;JavaScript;Kotlin;PHP;P...
83421      Bash/Shell;C#;C++;Go;Groovy;HTML/CSS;Java;Java...
83422      Bash/Shell;HTML/CSS;JavaScript;Node.js;Python;...
83424                                HTML/CSS;JavaScript;PHP;Python;SQL
83427      Bash/Shell;HTML/CSS;Java;JavaScript;Python;SQL
83428                                Java;Python
83430                                HTML/CSS;PHP;PowerShell;Python;SQL;VBA
83431      APL;Clojure;LISP;Python;Ruby;SQL;TypeScript
83432      C#;Dart;HTML/CSS;Java;JavaScript;Kotlin;Node.j...
83437                                Groovy;Java;Python
83438      Bash/Shell;JavaScript;Node.js;Python
Name: LanguageHaveWorkedWith, Length: 39792, dtype: object

```

In [118]: #Modifying data within Dataframes - updating rows and columns

```

import pandas as pd
people = {
    "first" : ["Corey", "Jane", "John"],
    "last" : ["Schafer", "Doe", "Dean"],
    "email" : ["coreyschafer@gmail.com", "janedoe@gmail.com", "johndean@gmail.
com"]
}
import pandas as pd
df = pd.DataFrame(people)
df

```

Out[118]:

	first	last	email
0	Corey	Schafer	coreyschafer@gmail.com
1	Jane	Doe	janedoe@gmail.com
2	John	Dean	johndean@gmail.com

In [119]: df.columns

Out[119]: Index(['first', 'last', 'email'], dtype='object')

```
In [121]: #updating all the column names in df
df.columns = ["first_name", "last_name","email"]
df
```

Out[121]:

	first_name	last_name	email
0	Corey	Schafer	coreyschafer@gmail.com
1	Jane	Doe	janedoe@gmail.com
2	John	Dean	johndean@gmail.com

```
In [122]: #Renamed column names of df in upper case
df.columns = [x.upper() for x in df.columns]
df
```

Out[122]:

	FIRST_NAME	LAST_NAME	EMAIL
0	Corey	Schafer	coreyschafer@gmail.com
1	Jane	Doe	janedoe@gmail.com
2	John	Dean	johndean@gmail.com

```
In [123]: #replacing spaces with _ for column names
df.columns = ["first name", "last name","email"]
df
```

Out[123]:

	first name	last name	email
0	Corey	Schafer	coreyschafer@gmail.com
1	Jane	Doe	janedoe@gmail.com
2	John	Dean	johndean@gmail.com

```
In [124]: df.columns = df.columns.str.replace(" ", "_")
df
```

Out[124]:

	first_name	last_name	email
0	Corey	Schafer	coreyschafer@gmail.com
1	Jane	Doe	janedoe@gmail.com
2	John	Dean	johndean@gmail.com

In [126]: #Updating column names using dictionary and Replace method
df.rename(columns={"first_name":"first", "last_name":"last"}, inplace=True)
df

Out[126]:

	first	last	email
0	Corey	Schafer	coreyschafer@gmail.com
1	Jane	Doe	janedoe@gmail.com
2	John	Dean	johndean@gmail.com