

stackoverflowdevelopersurvey

May 21, 2025

```
[ ]: #import libraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```
[ ]: #read the data
data = pd.read_csv(r"C:\Users\Dell\Downloads\stack-overflow-developer-survey-2023\survey_results_public.
↪csv")
data.shape
```

```
[ ]: (89184, 84)
```

```
[ ]: #read the info
data.info()
```

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

```
RangeIndex: 89184 entries, 0 to 89183
```

```
Data columns (total 84 columns):
```

#	Column	Non-Null Count	Dtype
0	ResponseId	89184 non-null	int64
1	Q120	89184 non-null	object
2	MainBranch	89184 non-null	object
3	Age	89184 non-null	object
4	Employment	87898 non-null	object
5	RemoteWork	73810 non-null	object
6	CodingActivities	73764 non-null	object
7	EdLevel	87973 non-null	object
8	LearnCode	87663 non-null	object
9	LearnCodeOnline	70084 non-null	object
10	LearnCodeCoursesCert	37076 non-null	object
11	YearsCode	87435 non-null	object
12	YearsCodePro	66136 non-null	object
13	DevType	76872 non-null	object
14	OrgSize	65043 non-null	object
15	PurchaseInfluence	64964 non-null	object
16	TechList	60851 non-null	object

17	BuyNewTool	83009	non-null	object
18	Country	87973	non-null	object
19	Currency	65334	non-null	object
20	CompTotal	48225	non-null	float64
21	LanguageHaveWorkedWith	87140	non-null	object
22	LanguageWantToWorkWith	80709	non-null	object
23	DatabaseHaveWorkedWith	73435	non-null	object
24	DatabaseWantToWorkWith	60911	non-null	object
25	PlatformHaveWorkedWith	63628	non-null	object
26	PlatformWantToWorkWith	51308	non-null	object
27	WebframeHaveWorkedWith	66938	non-null	object
28	WebframeWantToWorkWith	56741	non-null	object
29	MiscTechHaveWorkedWith	57019	non-null	object
30	MiscTechWantToWorkWith	46848	non-null	object
31	ToolsTechHaveWorkedWith	77884	non-null	object
32	ToolsTechWantToWorkWith	68315	non-null	object
33	NEWCollabToolsHaveWorkedWith	85864	non-null	object
34	NEWCollabToolsWantToWorkWith	76649	non-null	object
35	OpSysPersonal use	86557	non-null	object
36	OpSysProfessional use	78587	non-null	object
37	OfficeStackAsyncHaveWorkedWith	69090	non-null	object
38	OfficeStackAsyncWantToWorkWith	53743	non-null	object
39	OfficeStackSyncHaveWorkedWith	83439	non-null	object
40	OfficeStackSyncWantToWorkWith	69776	non-null	object
41	AISeachHaveWorkedWith	56328	non-null	object
42	AISeachWantToWorkWith	46150	non-null	object
43	AIDevHaveWorkedWith	25904	non-null	object
44	AIDevWantToWorkWith	19587	non-null	object
45	NEWSOSites	87973	non-null	object
46	SOVisitFreq	87140	non-null	object
47	SOAccount	87852	non-null	object
48	SOPartFreq	66061	non-null	object
49	SOComm	87692	non-null	object
50	SOAI	47858	non-null	object
51	AISelect	87973	non-null	object
52	AISeach	61501	non-null	object
53	AIACC	38594	non-null	object
54	AIBen	61396	non-null	object
55	AIToolInterested in Using	32783	non-null	object
56	AIToolCurrently Using	36137	non-null	object
57	AIToolNot interested in Using	21069	non-null	object
58	AINextVery different	12661	non-null	object
59	AINextNeither different nor similar	6599	non-null	object
60	AINextSomewhat similar	6238	non-null	object
61	AINextVery similar	2621	non-null	object
62	AINextSomewhat different	23303	non-null	object
63	TBranch	65768	non-null	object
64	ICorPM	43668	non-null	object

```

65 WorkExp 43579 non-null float64
66 Knowledge_1 42535 non-null object
67 Knowledge_2 41670 non-null object
68 Knowledge_3 41798 non-null object
69 Knowledge_4 41684 non-null object
70 Knowledge_5 41527 non-null object
71 Knowledge_6 41520 non-null object
72 Knowledge_7 41467 non-null object
73 Knowledge_8 41404 non-null object
74 Frequency_1 41916 non-null object
75 Frequency_2 41925 non-null object
76 Frequency_3 41054 non-null object
77 TimeSearching 42778 non-null object
78 TimeAnswering 42629 non-null object
79 ProfessionalTech 41783 non-null object
80 Industry 36774 non-null object
81 SurveyLength 86485 non-null object
82 SurveyEase 86554 non-null object
83 ConvertedCompYearly 48019 non-null float64
dtypes: float64(3), int64(1), object(80)
memory usage: 57.2+ MB

```

```
[ ]: #read the first 20 rows
data.head(20)
```

```

[ ]:      ResponseId      Q120      MainBranch \
0          1  I agree      None of these
1          2  I agree      I am a developer by profession
2          3  I agree      I am a developer by profession
3          4  I agree      I am a developer by profession
4          5  I agree      I am a developer by profession
5          6  I agree      I am a developer by profession
6          7  I agree      I am a developer by profession
7          8  I agree      I am a developer by profession
8          9  I agree  I am not primarily a developer, but I write co...
9         10  I agree      I am a developer by profession
10         11  I agree      I am a developer by profession
11         12  I agree      I am a developer by profession
12         13  I agree      I am a developer by profession
13         14  I agree  I am not primarily a developer, but I write co...
14         15  I agree      I am a developer by profession
15         16  I agree      I am a developer by profession
16         17  I agree      I am a developer by profession
17         18  I agree      I am a developer by profession
18         19  I agree      I am a developer by profession
19         20  I agree      I am a developer by profession

```

	Age	Employment \
0	18-24 years old	NaN
1	25-34 years old	Employed, full-time
2	45-54 years old	Employed, full-time
3	25-34 years old	Employed, full-time
4	25-34 years old	Employed, full-time;Independent contractor, fr...
5	35-44 years old	Employed, full-time
6	35-44 years old	Employed, full-time
7	25-34 years old	Employed, full-time
8	45-54 years old	Employed, full-time
9	25-34 years old	Not employed, but looking for work
10	25-34 years old	Employed, full-time
11	25-34 years old	Employed, full-time
12	25-34 years old	Employed, full-time
13	35-44 years old	Employed, full-time
14	25-34 years old	Employed, full-time
15	35-44 years old	Employed, full-time
16	35-44 years old	Employed, full-time
17	25-34 years old	Employed, full-time
18	Under 18 years old	Employed, full-time
19	35-44 years old	Employed, full-time

	RemoteWork \
0	NaN
1	Remote
2	Hybrid (some remote, some in-person)
3	Hybrid (some remote, some in-person)
4	Remote
5	Remote
6	Remote
7	Remote
8	Hybrid (some remote, some in-person)
9	NaN
10	Remote
11	Remote
12	Remote
13	Hybrid (some remote, some in-person)
14	Hybrid (some remote, some in-person)
15	Hybrid (some remote, some in-person)
16	Hybrid (some remote, some in-person)
17	Hybrid (some remote, some in-person)
18	Remote
19	Hybrid (some remote, some in-person)

	CodingActivities \
0	NaN
1	Hobby;Contribute to open-source projects;Boots...

2 Hobby;Professional development or self-paced l...
 3 Hobby
 4 Hobby;Contribute to open-source projects;Profe...
 5 Hobby;Professional development or self-paced l...
 6 Hobby;Contribute to open-source projects;Profe...
 7 Hobby
 8 Hobby;Contribute to open-source projects
 9 NaN
 10 Hobby
 11 Hobby
 12 Hobby;Professional development or self-paced l...
 13 Hobby;Professional development or self-paced l...
 14 Hobby
 15 Hobby;Contribute to open-source projects;Profe...
 16 Hobby
 17 Hobby
 18 Contribute to open-source projects
 19 Hobby;Professional development or self-paced l...

EdLevel \
 0 NaN
 1 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 2 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 3 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 4 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 5 Some college/university study without earning ...
 6 Some college/university study without earning ...
 7 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 8 Master's degree (M.A., M.S., M.Eng., MBA, etc.)
 9 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 10 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 11 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 12 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 13 Master's degree (M.A., M.S., M.Eng., MBA, etc.)
 14 Master's degree (M.A., M.S., M.Eng., MBA, etc.)
 15 Master's degree (M.A., M.S., M.Eng., MBA, etc.)
 16 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 17 Master's degree (M.A., M.S., M.Eng., MBA, etc.)
 18 Primary/elementary school
 19 Some college/university study without earning ...

LearnCode \
 0 NaN
 1 Books / Physical media;Colleague;Friend or fam...
 2 Books / Physical media;Colleague;On the job tr...
 3 Colleague;Friend or family member;Other online...
 4 Books / Physical media;Online Courses or Certi...

5 Books / Physical media;Colleague;Online Course...
 6 Friend or family member;Online Courses or Cert...
 7 Books / Physical media;Online Courses or Certi...
 8 Online Courses or Certification;On the job tra...
 9 Books / Physical media;Online Courses or Certi...
 10 Books / Physical media;Friend or family member...
 11 Online Courses or Certification;Other online r...
 12 Online Courses or Certification;Other online r...
 13 Books / Physical media;Online Courses or Certi...
 14 On the job training;Other online resources (e...
 15 Books / Physical media;Other online resources ...
 16 Online Courses or Certification;Coding Bootcamp
 17 Books / Physical media;Colleague;Other online ...
 18 Books / Physical media
 19 Online Courses or Certification;On the job tra...

	LearnCodeOnline ...	Frequency_1 \
0	NaN ...	NaN
1	Formal documentation provided by the owner of	1-2 times a week
2	Formal documentation provided by the owner of	6-10 times a week
3	Formal documentation provided by the owner of	1-2 times a week
4	Formal documentation provided by the owner of	1-2 times a week
5	Formal documentation provided by the owner of	1-2 times a week
6	NaN ...	1-2 times a week
7	Formal documentation provided by the owner of	NaN
8	Formal documentation provided by the owner of	NaN
9	Formal documentation provided by the owner of	NaN
10	Formal documentation provided by the owner of	1-2 times a week
11	Formal documentation provided by the owner of	NaN
12	Blogs with tips and tricks;Books;How-to videos... ..	Never
13	Blogs with tips and tricks;Books;Video-based O... ..	1-2 times a week
14	Formal documentation provided by the owner of	Never
15	Formal documentation provided by the owner of	1-2 times a week
16	NaN ...	NaN
17	Formal documentation provided by the owner of	1-2 times a week
18	NaN ...	NaN
19	Formal documentation provided by the owner of	1-2 times a week

	Frequency_2	Frequency_3	TimeSearching \
0	NaN	NaN	NaN
1	10+ times a week	Never	15-30 minutes a day
2	6-10 times a week	3-5 times a week	30-60 minutes a day
3	10+ times a week	1-2 times a week	15-30 minutes a day
4	1-2 times a week	3-5 times a week	60-120 minutes a day
5	1-2 times a week	3-5 times a week	30-60 minutes a day
6	3-5 times a week	1-2 times a week	Less than 15 minutes a day
7	NaN	NaN	60-120 minutes a day

8		NaN	NaN	NaN
9		NaN	NaN	NaN
10	1-2 times a week	6-10 times a week		30-60 minutes a day
11		NaN	NaN	NaN
12	3-5 times a week		Never	15-30 minutes a day
13	3-5 times a week	3-5 times a week		15-30 minutes a day
14	6-10 times a week	1-2 times a week		15-30 minutes a day
15	1-2 times a week	1-2 times a week		15-30 minutes a day
16		NaN	NaN	NaN
17	1-2 times a week	1-2 times a week		60-120 minutes a day
18		NaN	NaN	NaN
19	3-5 times a week	1-2 times a week		15-30 minutes a day

	TimeAnswering		ProfessionalTech \
0	NaN		NaN
1	15-30 minutes a day	DevOps function;Microservices;Automated testin...	
2	30-60 minutes a day	DevOps function;Microservices;Automated testin...	
3	30-60 minutes a day	Automated testing;Continuous integration (CI) ...	
4	30-60 minutes a day	Microservices;Automated testing;Observability ...	
5	15-30 minutes a day	DevOps function;Microservices;Observability to...	
6	15-30 minutes a day	Microservices;Automated testing;Continuous int...	
7	30-60 minutes a day		None of these
8	NaN		NaN
9	NaN		NaN
10	60-120 minutes a day	Automated testing;Continuous integration (CI) ...	
11	NaN		NaN
12	15-30 minutes a day	Automated testing;Observability tools;Continuo...	
13	30-60 minutes a day	Automated testing;Observability tools;Continuo...	
14	Over 120 minutes a day	Microservices;Observability tools;Developer po...	
15	15-30 minutes a day	Microservices;Automated testing;Observability ...	
16	NaN		NaN
17	30-60 minutes a day	DevOps function;Microservices;Automated testin...	
18	NaN		NaN
19	15-30 minutes a day	Observability tools;Continuous integration (CI...	

	Industry	SurveyLength \
0	NaN	NaN
1	Information Services, IT, Software Development...	Appropriate in length
2	Information Services, IT, Software Development...	Appropriate in length
3	NaN	Appropriate in length
4	Other	Appropriate in length
5	Other	Appropriate in length
6	Information Services, IT, Software Development...	Appropriate in length
7	Financial Services	NaN
8	NaN	Appropriate in length
9	NaN	Appropriate in length
10	Other	Appropriate in length

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11          NaN  Appropriate in length
12          Other  Appropriate in length
13  Information Services, IT, Software Development...  Appropriate in length
14          Other  Appropriate in length
15  Manufacturing, Transportation, or Supply Chain  Too long
16          NaN  Appropriate in length
17          Retail and Consumer Services  Appropriate in length
18          NaN  NaN
19  Information Services, IT, Software Development...  Appropriate in length

```

```

          SurveyEase  ConvertedCompYearly
0          NaN          NaN
1          Easy      285000.0
2          Easy      250000.0
3          Easy      156000.0
4  Neither easy nor difficult      23456.0
5  Neither easy nor difficult      96828.0
6          Easy      135000.0
7          NaN      80000.0
8  Neither easy nor difficult      64254.0
9  Neither easy nor difficult          NaN
10 Neither easy nor difficult          NaN
11          Easy      78003.0
12          Easy      75000.0
13          Easy      150000.0
14          Easy      187407.0
15  Neither easy nor difficult      107090.0
16          Easy      45149.0
17          Easy      58899.0
18          NaN       14.0
19          Easy      75010.0

```

[20 rows x 84 columns]

```
[ ]: pd.set_option('display.max_columns',85)
```

```
[ ]: data.tail(20)
```

```

[ ]:      ResponseId      Q120      MainBranch \
89164      89165  I agree  I am a developer by profession
89165      89166  I agree  I am a developer by profession
89166      89167  I agree  I am a developer by profession
89167      89168  I agree  I am a developer by profession
89168      89169  I agree  I am a developer by profession
89169      89170  I agree  I am a developer by profession
89170      89171  I agree  I am a developer by profession
89171      89172  I agree  I am a developer by profession

```


89172	89173	I agree	I am a developer by profession
89173	89174	I agree	I am a developer by profession
89174	89175	I agree	I am a developer by profession
89175	89176	I agree	I am a developer by profession
89176	89177	I agree	I am a developer by profession
89177	89178	I agree	I am a developer by profession
89178	89179	I agree	I am a developer by profession
89179	89180	I agree	I am a developer by profession
89180	89181	I agree	I am a developer by profession
89181	89182	I agree	I code primarily as a hobby
89182	89183	I agree	I am a developer by profession
89183	89184	I agree	I am a developer by profession

	Age	Employment \
89164	18-24 years old	Employed, full-time
89165	25-34 years old	Employed, full-time
89166	18-24 years old	Employed, full-time;Independent contractor, fr...
89167	18-24 years old	Employed, full-time
89168	18-24 years old	Student, full-time
89169	45-54 years old	Employed, full-time
89170	25-34 years old	Employed, full-time
89171	25-34 years old	Employed, full-time
89172	45-54 years old	Employed, full-time
89173	35-44 years old	Employed, full-time;Independent contractor, fr...
89174	18-24 years old	Employed, full-time
89175	25-34 years old	Employed, full-time
89176	18-24 years old	Student, full-time
89177	35-44 years old	Employed, full-time
89178	45-54 years old	Employed, full-time
89179	25-34 years old	Employed, full-time;Independent contractor, fr...
89180	18-24 years old	Student, full-time;Employed, part-time
89181	Prefer not to say	I prefer not to say
89182	Under 18 years old	Employed, part-time;Student, part-time
89183	35-44 years old	Employed, full-time

	RemoteWork \
89164	Remote
89165	In-person
89166	In-person
89167	Remote
89168	NaN
89169	Remote
89170	Hybrid (some remote, some in-person)
89171	In-person
89172	In-person
89173	Hybrid (some remote, some in-person)
89174	In-person

89175	Remote
89176	NaN
89177	Remote
89178	Remote
89179	Remote
89180	Hybrid (some remote, some in-person)
89181	NaN
89182	Hybrid (some remote, some in-person)
89183	Hybrid (some remote, some in-person)

CodingActivities \

89164	Professional development or self-paced learnin...
89165	Hobby;Contribute to open-source projects;Profe...
89166	Contribute to open-source projects;Professiona...
89167	Hobby;Bootstrapping a business;Professional de...
89168	NaN
89169	I don't code outside of work
89170	Bootstrapping a business;Freelance/contract work
89171	Hobby
89172	Hobby;Contribute to open-source projects;Profe...
89173	Hobby;Freelance/contract work;School or academ...
89174	Hobby;Contribute to open-source projects;Freel...
89175	I don't code outside of work
89176	NaN
89177	Bootstrapping a business;Freelance/contract work
89178	Hobby
89179	Hobby;Bootstrapping a business;Freelance/contr...
89180	School or academic work
89181	NaN
89182	Hobby;School or academic work
89183	Hobby;Professional development or self-paced l...

EdLevel \

89164	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89165	Master's degree (M.A., M.S., M.Eng., MBA, etc.)
89166	Some college/university study without earning ...
89167	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89168	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89169	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89170	Master's degree (M.A., M.S., M.Eng., MBA, etc.)
89171	Master's degree (M.A., M.S., M.Eng., MBA, etc.)
89172	Some college/university study without earning ...
89173	Master's degree (M.A., M.S., M.Eng., MBA, etc.)
89174	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89175	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89176	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89177	Master's degree (M.A., M.S., M.Eng., MBA, etc.)

89178 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 89179 Associate degree (A.A., A.S., etc.)
 89180 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 89181 Something else
 89182 Secondary school (e.g. American high school, G...
 89183 Bachelor's degree (B.A., B.S., B.Eng., etc.)

LearnCode \

89164 Online Courses or Certification;Other online r...
 89165 Online Courses or Certification;Other online r...
 89166 Books / Physical media;Hackathons (virtual or ...
 89167 Online Courses or Certification;Other online r...
 89168 Other online resources (e.g., videos, blogs, f...
 89169 Other online resources (e.g., videos, blogs, f...
 89170 Colleague;Hackathons (virtual or in-person);On...
 89171 Other online resources (e.g., videos, blogs, f...
 89172 Books / Physical media;School (i.e., Universit...
 89173 Other online resources (e.g., videos, blogs, f...
 89174 School (i.e., University, College, etc)
 89175 Hackathons (virtual or in-person);Online Cours...
 89176 On the job training;Other online resources (e...
 89177 Books / Physical media;Other online resources ...
 89178 Online Courses or Certification;On the job tra...
 89179 Online Courses or Certification;Other online r...
 89180 Colleague;Online Courses or Certification;Othe...
 89181 Books / Physical media;Hackathons (virtual or ...
 89182 Online Courses or Certification;Other online r...
 89183 Colleague;Online Courses or Certification;Othe...

LearnCodeOnline \

89164 Formal documentation provided by the owner of ...
 89165 Formal documentation provided by the owner of ...
 89166 Formal documentation provided by the owner of ...
 89167 Formal documentation provided by the owner of ...
 89168 Formal documentation provided by the owner of ...
 89169 Formal documentation provided by the owner of ...
 89170 Formal documentation provided by the owner of ...
 89171 Formal documentation provided by the owner of ...
 89172 NaN
 89173 Formal documentation provided by the owner of ...
 89174 NaN
 89175 Formal documentation provided by the owner of ...
 89176 How-to videos;Video-based Online Courses;Writt...
 89177 Blogs with tips and tricks;How-to videos;Writt...
 89178 Formal documentation provided by the owner of ...
 89179 Formal documentation provided by the owner of ...
 89180 Formal documentation provided by the owner of ...

89181 NaN
 89182 Formal documentation provided by the owner of ...
 89183 Formal documentation provided by the owner of ...

	LearnCodeCoursesCert	YearsCode	YearsCodePro	\
89164	Other;Udemy	6	2	
89165	Udemy	6	3	
89166	Codecademy;Udemy	7	2	
89167	edX;Udemy;Coursera	6	2	
89168	NaN	10	NaN	
89169	NaN	15	15	
89170	Other	18	9	
89171	NaN	20	9	
89172	NaN	38	22	
89173	NaN	20	NaN	
89174	NaN	5	1	
89175	Codecademy;Udemy;Pluralsight;Udacity	10	8	
89176	NaN	2	NaN	
89177	NaN	17	11	
89178	edX;Udemy;Pluralsight;Udacity	25	22	
89179	Udemy	20	5	
89180	NaN	5	NaN	
89181	Codecademy;Coursera	10	NaN	
89182	Udemy	3	NaN	
89183	Codecademy;Pluralsight;Coursera	17	12	

	DevType	OrgSize	\
89164	Developer, back-end	20 to 99 employees	
89165	Developer, back-end	1,000 to 4,999 employees	
89166	Developer, full-stack	20 to 99 employees	
89167	Developer, mobile	20 to 99 employees	
89168	NaN	NaN	
89169	Engineer, data	2 to 9 employees	
89170	Other (please specify):	500 to 999 employees	
89171	Developer, full-stack	10 to 19 employees	
89172	Developer, full-stack	20 to 99 employees	
89173	Developer, full-stack	NaN	
89174	Developer, full-stack	20 to 99 employees	
89175	Developer, mobile	10 to 19 employees	
89176	NaN	NaN	
89177	Developer, full-stack	100 to 499 employees	
89178	Developer, full-stack	10,000 or more employees	
89179	Developer, front-end	100 to 499 employees	
89180	Developer, back-end	NaN	
89181	NaN	NaN	
89182	System administrator	NaN	
89183	Developer, full-stack	100 to 499 employees	

	PurchaseInfluence	TechList \
89164	I have little or no influence	NaN
89165	I have little or no influence	NaN
89166	I have some influence	Investigate
89167	I have little or no influence	NaN
89168	NaN	Investigate
89169	I have a great deal of influence	Investigate
89170	I have little or no influence	NaN
89171	I have little or no influence	NaN
89172	I have little or no influence	NaN
89173	NaN	Other
89174	I have little or no influence	NaN
89175	I have some influence	Investigate
89176	NaN	Investigate
89177	I have little or no influence	NaN
89178	I have little or no influence	NaN
89179	I have some influence	Investigate
89180	NaN	Investigate
89181	NaN	NaN
89182	NaN	Investigate
89183	I have some influence	NaN

	BuyNewTool \
89164	Start a free trial;Ask developers I know/work ...
89165	Start a free trial;Ask developers I know/work ...
89166	Start a free trial;Ask developers I know/work ...
89167	Start a free trial;Ask developers I know/work ...
89168	Ask developers I know/work with;Visit develope...
89169	Start a free trial;Visit developer communities...
89170	Start a free trial;Ask developers I know/work ...
89171	Start a free trial;Ask developers I know/work ...
89172	Start a free trial;Ask developers I know/work ...
89173	Start a free trial;Other (please specify):
89174	Start a free trial;Ask developers I know/work ...
89175	Start a free trial;Ask developers I know/work ...
89176	Start a free trial;Ask developers I know/work ...
89177	Visit developer communities like Stack Overflo...
89178	Start a free trial;Ask developers I know/work ...
89179	NaN
89180	Start a free trial;Ask developers I know/work ...
89181	NaN
89182	Ask developers I know/work with;Visit develope...
89183	Start a free trial;Ask developers I know/work ...

	Country	Currency	CompTotal \
89164	India	INR\tIndian rupee	NaN

89165	India	INR\tIndian rupee	NaN
89166	Armenia	AMD\tArmenian dram	6.500000e+06
89167	India	INR\tIndian rupee	1.300000e+06
89168	France	NaN	NaN
89169	South Africa	ZAR\tSouth African rand	NaN
89170	France	EUR European Euro	6.000000e+04
89171	Greece	EUR European Euro	5.700000e+04
89172	Spain	EUR European Euro	3.554100e+04
89173	Trinidad and Tobago	NaN	NaN
89174	Pakistan	PKR\tPakistani rupee	1.200000e+06
89175	United States of America	USD\tUnited States dollar	1.350000e+05
89176	Greece	NaN	NaN
89177	Mexico	MXN\tMexican peso	1.000000e+06
89178	United States of America	USD\tUnited States dollar	2.120210e+05
89179	Brazil	BRL\tBrazilian real	2.000000e+05
89180	Romania	NaN	NaN
89181	Israel	NaN	NaN
89182	Switzerland	NaN	NaN
89183	Iran, Islamic Republic of...	IRR\tIranian rial	3.300000e+09

	LanguageHaveWorkedWith	\
89164	Go;HTML/CSS;Java;JavaScript;Python	
89165	C;C#;C++;Java;JavaScript;TypeScript	
89166	Assembly;Bash/Shell (all shells);C;C#;C++;Java...	
89167	Dart;HTML/CSS;JavaScript;TypeScript	
89168	Assembly;Bash/Shell (all shells);C;C++;HTML/CS...	
89169	Groovy;HTML/CSS;Java;JavaScript;PHP;Python;R;S...	
89170	C#;F#;HTML/CSS;JavaScript;SQL;TypeScript	
89171	Java;JavaScript;TypeScript	
89172	Bash/Shell (all shells);HTML/CSS;JavaScript;Pe...	
89173	C#;HTML/CSS;JavaScript;R;SQL	
89174	Bash/Shell (all shells);C;C++;HTML/CSS;JavaScr...	
89175	Java;Kotlin	
89176	HTML/CSS;Java;JavaScript;PHP;Python;SQL;TypeSc...	
89177	Bash/Shell (all shells);C#;C++;Cobol;Groovy;PH...	
89178	JavaScript;TypeScript	
89179	HTML/CSS;Java;JavaScript;SQL;TypeScript	
89180	Dart;Java;Python;SQL	
89181	Assembly;Bash/Shell (all shells);C;C#;Python;R...	
89182	Bash/Shell (all shells);C#;HTML/CSS;Java;JavaS...	
89183	C#;Go;JavaScript;SQL;TypeScript	

	LanguageWantToWorkWith	\
89164	Go;Python;Rust	
89165	Dart;Elixir;Go;JavaScript;Python;Rust;Solidity...	
89166	C#;Python;TypeScript	
89167	Dart;Go;HTML/CSS;JavaScript;Swift;TypeScript	

```

89168 Bash/Shell (all shells);Go;Haskell;HTML/CSS;Ru...
89169 NaN
89170 C#;HTML/CSS;JavaScript;SQL
89171 C;C++
89172 Bash/Shell (all shells);JavaScript;SAS;SQL
89173 C#;HTML/CSS;JavaScript;PHP;SQL
89174 Assembly;Bash/Shell (all shells);C;C++;HTML/CS...
89175 Dart;Java;JavaScript;Kotlin
89176 HTML/CSS;TypeScript
89177 HTML/CSS;Java;JavaScript;SQL;TypeScript
89178 Go;JavaScript;Python;TypeScript
89179 Bash/Shell (all shells);C;Go;HTML/CSS;JavaScri...
89180 Java;JavaScript;Python;SQL;TypeScript
89181 Python;Rust
89182 Bash/Shell (all shells);HTML/CSS;JavaScript;Po...
89183 C#;Go;JavaScript;SQL;TypeScript

DatabaseHaveWorkedWith \
89164 Dynamodb;Elasticsearch;Firebase Realtime Datab...
89165 Cloud Firestore;MongoDB;PostgreSQL;Redis
89166 Elasticsearch;Firebase Realtime Database;Micro...
89167 MongoDB;MySQL;PostgreSQL;SQLite
89168 Firebird;MariaDB;MySQL;PostgreSQL;SQLite
89169 MariaDB;Microsoft SQL Server;MongoDB;MySQL;Pos...
89170 Microsoft SQL Server
89171 H2
89172 Oracle;PostgreSQL;SQLite
89173 Microsoft SQL Server;MySQL
89174 MySQL;Oracle;PostgreSQL;Redis;SQLite
89175 H2;MongoDB;MySQL;SQLite
89176 MySQL
89177 Firebird;IBM DB2;MariaDB;Microsoft Access;Micr...
89178 Dynamodb
89179 MongoDB;MySQL;PostgreSQL;SQLite
89180 PostgreSQL
89181 SQLite
89182 MariaDB;Microsoft SQL Server;MongoDB;MySQL;Red...
89183 Microsoft SQL Server;Redis;SQLite

DatabaseWantToWorkWith \
89164 MongoDB;PostgreSQL
89165 Dynamodb;Elasticsearch;MongoDB;MySQL;PostgreSQ...
89166 Elasticsearch;Microsoft SQL Server;MongoDB;Pos...
89167 Cockroachdb;MongoDB;MySQL;PostgreSQL;SQLite
89168 Firebird;PostgreSQL;SQLite
89169 NaN
89170 Microsoft SQL Server

```

89171	Supabase
89172	PostgreSQL
89173	MySQL;Oracle;SQLite
89174	PostgreSQL
89175	MySQL;SQLite
89176	Firebase Realtime Database;MongoDB;PostgreSQL
89177	H2;Oracle
89178	Dynamodb
89179	PostgreSQL;SQLite
89180	PostgreSQL
89181	NaN
89182	Cassandra;Cosmos DB;Dynamodb;MariaDB;Microsoft...
89183	Microsoft SQL Server;Redis;SQLite
PlatformHaveWorkedWith \	
89164	Amazon Web Services (AWS);Google Cloud;Hetzner
89165	Amazon Web Services (AWS);Firebase;Heroku
89166	Firebase;Heroku
89167	NaN
89168	Amazon Web Services (AWS);Firebase;Netlify
89169	Amazon Web Services (AWS);Cloudflare;Hetzner
89170	Microsoft Azure
89171	NaN
89172	VMware
89173	NaN
89174	Heroku
89175	VMware
89176	NaN
89177	Digital Ocean;Microsoft Azure;OpenShift;VMware
89178	Amazon Web Services (AWS)
89179	Digital Ocean;Firebase;Google Cloud;Heroku;Vercel
89180	NaN
89181	Amazon Web Services (AWS)
89182	Amazon Web Services (AWS);Cloudflare;Google Cl...
89183	Hetzner
PlatformWantToWorkWith \	
89164	Amazon Web Services (AWS)
89165	Amazon Web Services (AWS);Firebase
89166	Amazon Web Services (AWS);Cloudflare;VMware
89167	NaN
89168	Firebase
89169	NaN
89170	Microsoft Azure
89171	NaN
89172	NaN
89173	NaN

89174 Amazon Web Services (AWS);Google Cloud;Heroku;...
 89175 NaN
 89176 NaN
 89177 NaN
 89178 Amazon Web Services (AWS)
 89179 Amazon Web Services (AWS);Heroku;Netlify;Vercel
 89180 NaN
 89181 Amazon Web Services (AWS);Microsoft Azure
 89182 Amazon Web Services (AWS);Cloudflare;Digital O...
 89183 Hetzner;Microsoft Azure

WebframeHaveWorkedWith \
 89164 Django;Express;FastAPI;Flask;Node.js;React
 89165 Angular;Django;Express;NestJS;Node.js;React
 89166 ASP.NET;ASP.NET CORE;jQuery
 89167 Express;Node.js;React;Svelte
 89168 Angular;AngularJS;Deno;Django;Express;Flask;jQ...
 89169 jQuery;Node.js;WordPress
 89170 ASP.NET;ASP.NET CORE;Blazor;React
 89171 NaN
 89172 Express;jQuery;Node.js
 89173 ASP.NET CORE;WordPress
 89174 ASP.NET;ASP.NET CORE;Blazor;jQuery;React;Ruby ...
 89175 Spring Boot
 89176 Angular;Express;jQuery;Node.js;React
 89177 AngularJS;ASP.NET;CodeIgniter;Drupal;jQuery;La...
 89178 Express;Node.js;Spring Boot
 89179 Angular;AngularJS;Express;jQuery;Node.js;Nuxt...
 89180 Spring Boot
 89181 NaN
 89182 Express;Next.js;Node.js;React;WordPress
 89183 Angular;ASP.NET;ASP.NET CORE;Blazor;Node.js

WebframeWantToWorkWith \
 89164 Django;FastAPI;Flask
 89165 Deno;Express;Fastify;NestJS;Next.js;Node.js;Re...
 89166 ASP.NET CORE;Blazor;jQuery
 89167 Deno;Express;FastAPI;Next.js;Node.js;Svelte
 89168 Solid.js
 89169 NaN
 89170 ASP.NET CORE;Blazor;jQuery
 89171 NaN
 89172 Express;Node.js
 89173 ASP.NET CORE;Node.js;WordPress
 89174 jQuery;React;Ruby on Rails
 89175 NaN
 89176 Express;Node.js;React

89177	Angular;Spring Boot
89178	Node.js
89179	Express;Node.js;Nuxt.js;Svelte;Vue.js
89180	Spring Boot
89181	NaN
89182	Angular;AngularJS;Express;Next.js;Node.js;Reac...
89183	Angular;ASP.NET;ASP.NET CORE;Blazor;Deno;Node...
	MiscTechHaveWorkedWith \
89164	Flutter;NumPy;Opencv;OpenGL;Pandas;RabbitMQ
89165	NaN
89166	.NET (5+) ;Apache Kafka;OpenGL;Qt
89167	Flutter;NumPy;Pandas;Scikit-Learn
89168	Qt
89169	Hadoop
89170	.NET (5+) ;.NET Framework (1.0 - 4.8)
89171	Opencv
89172	NaN
89173	Cordova
89174	NaN
89175	Opencv;OpenGL;Spring Framework
89176	TensorFlow
89177	Apache Kafka;Cordova;Ionic;OpenGL
89178	Apache Kafka
89179	Flutter
89180	Flutter;Opencv;RabbitMQ;Spring Framework;Torch...
89181	NumPy;Pandas;TensorFlow
89182	CUDA;NumPy;Torch/PyTorch
89183	.NET (5+) ;.NET Framework (1.0 - 4.8)
	MiscTechWantToWorkWith \
89164	NumPy;Opencv;Pandas
89165	NaN
89166	.NET (5+) ;.NET MAUI;Apache Kafka;OpenGL;Rabbi...
89167	Capacitor;Flutter;JAX;NumPy;Pandas;React Nativ...
89168	Tauri
89169	NaN
89170	.NET (5+)
89171	CUDA
89172	NaN
89173	Cordova;Electron;TensorFlow
89174	NaN
89175	Xamarin
89176	NaN
89177	Spring Framework
89178	NaN
89179	NaN

89180 RabbitMQ;Spring Framework;Torch/PyTorch
 89181 NumPy;Pandas;Torch/PyTorch
 89182 CUDA;Flutter;NumPy;TensorFlow;Torch/PyTorch
 89183 .NET (5+) ;Apache Kafka;RabbitMQ;Tauri

ToolsTechHaveWorkedWith \

89164 Docker;Kubernetes;npm;Pip;Yarn
 89165 Docker;Homebrew;npm;Pip;Unity 3D;Webpack;Yarn
 89166 Chocolatey;GNU GCC;Homebrew;LLVM's Clang;npm;N...
 89167 Homebrew;Vite
 89168 APT;Bun;Cargo;Chocolatey;Docker;GNU GCC;Gradle...
 89169 Docker;Homebrew;npm;Pip
 89170 MSBuild;Visual Studio Solution
 89171 Gradle
 89172 APT;GNU GCC;Make;npm;Pip;Webpack
 89173 npm
 89174 Docker;Homebrew;npm;Visual Studio Solution;Web...
 89175 Docker;Gradle;Maven (build tool)
 89176 npm;Yarn
 89177 Ant;Composer;Docker;NuGet;Visual Studio Soluti...
 89178 Docker;Homebrew;Yarn
 89179 Chocolatey;CMake;Docker;Maven (build tool);npm...
 89180 Maven (build tool);Pip
 89181 Cargo
 89182 Docker;Kubernetes;npm;Podman;Vite
 89183 Docker;npm;NuGet;pnpm;Vite;Webpack;Yarn

ToolsTechWantToWorkWith \

89164 Ansible;Docker;Kubernetes;Pip;Terraform
 89165 Bun;Docker;Homebrew;npm;Yarn
 89166 Chocolatey;Docker;npm;NuGet;Terraform;Unity 3D...
 89167 Docker;Homebrew;Podman;Vite
 89168 Docker;Make;Podman
 89169 NaN
 89170 MSBuild;Visual Studio Solution
 89171 Gradle
 89172 APT;Docker;npm;Webpack
 89173 Docker;Godot;npm;Unreal Engine
 89174 Docker;Homebrew;Kubernetes;LLVM's Clang;Unreal...
 89175 Gradle
 89176 npm
 89177 Maven (build tool);npm
 89178 Docker;Godot;Homebrew;Vite;Yarn
 89179 Docker;npm;Pip;Vite;Yarn
 89180 Maven (build tool);Pip
 89181 Cargo;Docker;Kubernetes;Terraform
 89182 Ansible;APT;Docker;Kubernetes;npm;Pip;Podman;T...

89183 Bun;Docker;npm;NuGet;pnpm;Vite;Yarn

NEWCollabToolsHaveWorkedWith \

89164 Android Studio;Atom;Fleet;Goland;IntelliJ IDEA...

89165 Android Studio;Atom;Code::Blocks;Eclipse;Intel...

89166 Android Studio;Atom;CLion;DataGrip;Nano;Neovim...

89167 Android Studio;Jupyter Notebook/JupyterLab;Sub...

89168 Eclipse;IntelliJ IDEA;Qt Creator;Vim;Visual St...

89169 NaN

89170 Notepad++;Vim;Visual Studio

89171 IntelliJ IDEA;Vim

89172 Vim

89173 RStudio;Visual Studio;Visual Studio Code

89174 Android Studio;Atom;Notepad++;Sublime Text;Vim...

89175 Android Studio;Atom;Eclipse;IntelliJ IDEA;Netb...

89176 Android Studio;Code::Blocks;Eclipse;IntelliJ I...

89177 Atom;Eclipse;PhpStorm;Sublime Text;Vim;Visual ...

89178 IntelliJ IDEA;Nano;Visual Studio Code

89179 Android Studio;Atom;Eclipse;IntelliJ IDEA;Netb...

89180 Android Studio;IntelliJ IDEA;PyCharm

89181 Jupyter Notebook/JupyterLab;Neovim;Visual Stud...

89182 Eclipse;IntelliJ IDEA;Nano;Notepad++;PyCharm;V...

89183 Visual Studio;Visual Studio Code

NEWCollabToolsWantToWorkWith \

89164 PyCharm;Visual Studio Code

89165 Nano;Vim;Visual Studio Code

89166 DataGrip;Notepad++;Rider

89167 Jupyter Notebook/JupyterLab;Sublime Text;Visua...

89168 Vim

89169 NaN

89170 Notepad++;Visual Studio

89171 Fleet;IntelliJ IDEA;Vim

89172 Neovim;Vim

89173 Netbeans;Visual Studio;Visual Studio Code

89174 Vim;Visual Studio Code

89175 Android Studio;IntelliJ IDEA;Notepad++

89176 PyCharm;Visual Studio Code

89177 IntelliJ IDEA;Notepad++;Visual Studio Code

89178 Visual Studio Code

89179 Visual Studio Code

89180 IntelliJ IDEA;PyCharm

89181 Jupyter Notebook/JupyterLab;Neovim;Visual Stud...

89182 Jupyter Notebook/JupyterLab;Notepad++;Visual S...

89183 Visual Studio;Visual Studio Code

OpSysPersonal use \

89164 Ubuntu;Windows;Windows Subsystem for Linux (WSL)
 89165 Android;Debian;MacOS;Ubuntu;Windows
 89166 Debian;Ubuntu;Windows;Windows Subsystem for Li...
 89167 Android;MacOS
 89168 Arch;Other Linux-based
 89169 MacOS
 89170 Windows
 89171 Windows
 89172 Ubuntu
 89173 Android;Windows
 89174 MacOS
 89175 Android;ChromeOS;iOS;iPadOS;Other Linux-based;...
 89176 Ubuntu;Windows
 89177 Debian;Ubuntu
 89178 MacOS
 89179 Android;Windows
 89180 Windows
 89181 Windows
 89182 Arch;Debian;iOS;iPadOS;MacOS;Ubuntu;Windows;Wi...
 89183 Windows

OpSysProfessional use \
 89164 MacOS;Ubuntu
 89165 Android;Arch;ChromeOS;Fedora;MacOS;Other Linux...
 89166 Red Hat;Windows
 89167 Android;MacOS
 89168 Fedora;Other Linux-based;Ubuntu
 89169 NaN
 89170 Windows
 89171 Windows
 89172 Debian;Ubuntu
 89173 Windows
 89174 MacOS;Other Linux-based
 89175 Android;Other Linux-based;Windows;Windows Subs...
 89176 Windows
 89177 MacOS;Windows
 89178 MacOS;Ubuntu
 89179 Android;Ubuntu;Windows
 89180 Windows
 89181 NaN
 89182 BSD;Red Hat;Solaris;Ubuntu;Windows
 89183 Windows

OfficeStackAsyncHaveWorkedWith \
 89164 Jira
 89165 Monday.com;Trello
 89166 Confluence;Jira;Miro;Trello

89167		NaN
89168	Doxygen;Markdown File;Wikis;YouTrack	
89169		Trello
89170		Confluence;Jira
89171	Confluence;Jira;Markdown File	
89172		Markdown File
89173		Basecamp;Trello
89174		Asana;Jira
89175		Jira
89176		Trello
89177		Confluence;Jira
89178	Confluence;Jira;Markdown File;Stack Overflow f...	
89179	Asana;Confluence;Jira;Markdown File;Miro;Notio...	
89180		Jira
89181		NaN
89182	Confluence;Jira;Trello	
89183		NaN
	OfficeStackAsyncWantToWorkWith \	
89164		Jira
89165	GitHub Discussions;Monday.com;Stack Overflow f...	
89166		NaN
89167		NaN
89168		Markdown File
89169		NaN
89170		Azure Devops;Notion
89171	Confluence;Markdown File	
89172		Markdown File
89173		NaN
89174	Asana;GitHub Discussions;Jira;Trello	
89175		Jira;Trello;YouTrack
89176		Jira
89177		NaN
89178	GitHub Discussions;Stack Overflow for Teams	
89179	Markdown File;Miro;Wikis	
89180		Jira
89181		NaN
89182	Azure Devops;Confluence;Jira	
89183		NaN
	OfficeStackSyncHaveWorkedWith \	
89164		Google Meet;Slack;Zoom
89165	Discord;Google Meet;Microsoft Teams;Skype;Slac...	
89166	Discord;Google Meet;Mattermost;Telegram	
89167		Google Meet;Slack
89168		Discord;Slack
89169		Whatsapp

89170 Google Chat
 89171 Discord;Microsoft Teams;Zoom
 89172 Cisco Webex Teams;Jitsi;Microsoft Teams;Skype;...
 89173 Google Chat;Google Meet;Whatsapp;Zoom
 89174 Google Meet;Microsoft Teams;Slack
 89175 Cisco Webex Teams;Discord;Microsoft Teams;Zoom
 89176 Discord;Google Meet;Microsoft Teams;Slack
 89177 Microsoft Teams;Zoom
 89178 Microsoft Teams;Slack;Zoom
 89179 Discord;Google Meet;Jitsi;Microsoft Teams;Slac...
 89180 Microsoft Teams
 89181 NaN
 89182 Cisco Webex Teams;Discord;Microsoft Teams;Sign...
 89183 Google Meet;Skype;Telegram;Whatsapp

OfficeStackSyncWantToWorkWith \
 89164 Google Meet;Slack;Zoom
 89165 Discord;Google Meet;Microsoft Teams;Skype;Slac...
 89166 Discord;Telegram
 89167 Google Meet;Slack
 89168 Discord;Slack
 89169 NaN
 89170 Microsoft Teams;Slack
 89171 Discord;Microsoft Teams
 89172 Jitsi;Telegram
 89173 Whatsapp;Zoom
 89174 Google Meet;Microsoft Teams;Slack
 89175 Cisco Webex Teams;Discord;Microsoft Teams;Slack
 89176 Discord;Microsoft Teams;Slack
 89177 NaN
 89178 Slack
 89179 Discord;Google Meet;Jitsi;Microsoft Teams;Tele...
 89180 Microsoft Teams
 89181 NaN
 89182 Discord;Microsoft Teams;Skype
 89183 Google Meet;Skype;Telegram;Whatsapp

	AISeachHaveWorkedWith	AISeachWantToWorkWith \
89164	ChatGPT	ChatGPT
89165	Bing AI;ChatGPT	ChatGPT;Google Bard AI
89166	ChatGPT	ChatGPT
89167	ChatGPT	Bing AI;ChatGPT
89168	ChatGPT	NaN
89169	ChatGPT	NaN
89170	ChatGPT	ChatGPT
89171	NaN	NaN
89172	ChatGPT	ChatGPT;Google Bard AI

89173		ChatGPT		ChatGPT;Google Bard AI
89174		ChatGPT;Phind		ChatGPT;Phind
89175		ChatGPT;Google Bard AI		ChatGPT;Google Bard AI
89176		ChatGPT		ChatGPT
89177		NaN		NaN
89178		NaN		NaN
89179		ChatGPT		ChatGPT
89180		ChatGPT		ChatGPT
89181		ChatGPT;Quora Poe		ChatGPT;Quora Poe
89182	Bing AI;ChatGPT;WolframAlpha		Bing AI;ChatGPT;Google Bard AI	
89183		ChatGPT		ChatGPT

	AIDevHaveWorkedWith	AIDevWantToWorkWith	\
89164	GitHub Copilot		NaN
89165		NaN	NaN
89166		NaN	NaN
89167		NaN	NaN
89168		NaN	NaN
89169		NaN	NaN
89170		NaN	NaN
89171		NaN	NaN
89172		NaN	NaN
89173		NaN	NaN
89174	Tabnine		Tabnine
89175		NaN	NaN
89176		NaN	NaN
89177		NaN	NaN
89178		NaN	NaN
89179	Whispr AI		Whispr AI
89180		NaN	NaN
89181		NaN	NaN
89182		NaN	NaN
89183	GitHub Copilot		GitHub Copilot

		NEWSOSites	\
89164		Stack Overflow;Stack Exchange	
89165	Stack Overflow;Stack Exchange;Stack Overflow f...		
89166	Stack Overflow;Stack Exchange;Stack Overflow f...		
89167		Stack Overflow;Stack Exchange	
89168		Stack Overflow;Stack Exchange	
89169		Stack Overflow;Stack Exchange	
89170		Stack Overflow;Stack Exchange	
89171		Stack Overflow;Stack Exchange	
89172		Stack Overflow;Stack Exchange	
89173		Stack Overflow;Stack Exchange	
89174	Stack Overflow;Stack Exchange;Collectives on S...		
89175		Stack Overflow;Stack Exchange	

89176	Stack Overflow
89177	Stack Overflow
89178	Stack Overflow;Stack Exchange;Stack Overflow f...
89179	Stack Overflow;Stack Exchange
89180	Stack Overflow;Stack Exchange
89181	Stack Overflow;Stack Exchange
89182	Stack Overflow;Stack Exchange;Stack Overflow f...
89183	Stack Overflow

	SOVisitFreq	SOAccount \
89164	A few times per week	Yes
89165	Multiple times per day	Yes
89166	A few times per week	Yes
89167	Daily or almost daily	Not sure/can't remember
89168	A few times per week	No
89169	Daily or almost daily	Yes
89170	A few times per week	Yes
89171	Daily or almost daily	Yes
89172	A few times per week	Yes
89173	A few times per week	Yes
89174	Multiple times per day	Yes
89175	Multiple times per day	Not sure/can't remember
89176	Less than once per month or monthly	Yes
89177	A few times per week	No
89178	Daily or almost daily	Yes
89179	Multiple times per day	Yes
89180	Multiple times per day	Yes
89181	NaN	NaN
89182	A few times per month or weekly	No
89183	A few times per week	Yes

	SOPartFreq	SOComm \
89164	I have never participated in Q&A on Stack Over...	Yes, somewhat
89165	A few times per month or weekly	Yes, definitely
89166	A few times per month or weekly	Yes, definitely
89167	NaN	No, not really
89168	NaN	No, not at all
89169	A few times per month or weekly	Yes, somewhat
89170	A few times per month or weekly	Yes, somewhat
89171	Less than once per month or monthly	Neutral
89172	Less than once per month or monthly	Yes, somewhat
89173	Less than once per month or monthly	Yes, somewhat
89174	A few times per month or weekly	Yes, definitely
89175	NaN	No, not really
89176	I have never participated in Q&A on Stack Over...	No, not at all
89177	NaN	No, not really
89178	A few times per month or weekly	No, not really

89179	I have never participated in Q&A on Stack Over...	Neutral
89180	I have never participated in Q&A on Stack Over...	No, not really
89181		NaN NaN
89182		NaN Yes, somewhat
89183	Less than once per month or monthly	Yes, somewhat

		SOAI \
89164		NaN
89165	I think StackOverflow should also use AI to ge...	
89166	Formating questions and answers properly (e.g...	
89167	It's should,it will make stackoverflow better ...	
89168		NaN
89169	I think it is great.	
89170	Better titles would be good, but one great imp...	
89171	It should definitely be explored	
89172	To find right answers to questions and picking...	
89173	AI can be used to help fix the grammar in user...	
89174	no thoughts right now	
89175	I think there is value in incorporating AI to ...	
89176	Find appropriate response based on likes and c...	
89177	To group the same questions/answers to differe...	
89178	Improve question writing	
89179		NaN
89180	I'm not sure	
89181		NaN
89182	Define Parameters more detailed. I believe in ...	
89183		NaN

	AISelect	AISelect \
89164	Yes	Favorable
89165	Yes	Favorable
89166	No, but I plan to soon	Unsure
89167	Yes	Very favorable
89168	Yes	Indifferent
89169	Yes	Very favorable
89170	Yes	Unsure
89171	No, and I don't plan to	NaN
89172	Yes	Favorable
89173	Yes	Very favorable
89174	Yes	Indifferent
89175	Yes	Favorable
89176	Yes	Very favorable
89177	No, but I plan to soon	Indifferent
89178	No, but I plan to soon	Favorable
89179	Yes	Very favorable
89180	Yes	Very favorable
89181	No, but I plan to soon	Very favorable

89182	Yes	Favorable
89183	Yes	Favorable

AIACC \

89164	Increase productivity;Greater efficiency;Improv...
89165	Increase productivity;Greater efficiency;Speed...
89166	NaN
89167	Increase productivity;Greater efficiency;Speed...
89168	Other (please explain);Increase productivity;S...
89169	Other (please explain)
89170	Increase productivity;Speed up learning
89171	NaN
89172	Increase productivity;Speed up learning;Improv...
89173	Other (please explain);Increase productivity;G...
89174	Increase productivity;Speed up learning;Improv...
89175	Increase productivity;Greater efficiency;Speed...
89176	Increase productivity;Greater efficiency;Speed...
89177	NaN
89178	NaN
89179	Increase productivity;Greater efficiency;Speed...
89180	Speed up learning
89181	NaN
89182	Increase productivity;Greater efficiency;Speed...
89183	Increase productivity;Greater efficiency;Speed...

AIBen \

89164	Somewhat trust
89165	Somewhat trust
89166	Neither trust nor distrust
89167	Somewhat trust
89168	Neither trust nor distrust
89169	Somewhat trust
89170	Somewhat distrust
89171	NaN
89172	Highly distrust
89173	Somewhat trust
89174	Neither trust nor distrust
89175	Somewhat trust
89176	Neither trust nor distrust
89177	Neither trust nor distrust
89178	Somewhat distrust
89179	Somewhat trust
89180	Somewhat trust
89181	Highly trust
89182	Somewhat distrust
89183	Neither trust nor distrust

	AIToolInterested in Using \
89164	Committing and reviewing code
89165	Learning about a codebase;Project planning;Wri...
89166	NaN
89167	Writing code;Debugging and getting help;Commit...
89168	Learning about a codebase;Documenting code;Com...
89169	Project planning;Documenting code;Deployment a...
89170	Writing code;Debugging and getting help;Testin...
89171	NaN
89172	Learning about a codebase;Documenting code;Deb...
89173	Documenting code;Debugging and getting help;Te...
89174	Learning about a codebase;Project planning;Wri...
89175	Learning about a codebase;Documenting code;Deb...
89176	NaN
89177	NaN
89178	NaN
89179	Learning about a codebase;Project planning;Wri...
89180	Writing code;Documenting code;Testing code
89181	NaN
89182	Learning about a codebase;Project planning;Wri...
89183	Learning about a codebase;Writing code

	AIToolCurrently Using \
89164	NaN
89165	Learning about a codebase;Project planning;Wri...
89166	NaN
89167	Project planning;Writing code;Debugging and ge...
89168	Debugging and getting help
89169	Learning about a codebase;Writing code;Debuggi...
89170	Other (please describe)
89171	NaN
89172	Learning about a codebase;Documenting code;Deb...
89173	Writing code
89174	Writing code
89175	Writing code;Testing code
89176	Learning about a codebase;Project planning;Wri...
89177	NaN
89178	NaN
89179	Writing code;Documenting code;Debugging and ge...
89180	Learning about a codebase;Debugging and gettin...
89181	NaN
89182	Learning about a codebase;Writing code;Debuggi...
89183	Learning about a codebase;Writing code

	AIToolNot interested in Using \
89164	NaN
89165	NaN

89166		NaN
89167		NaN
89168	Project planning;Writing code;Testing code	
89169	Committing and reviewing code	
89170	Learning about a codebase;Project planning;Doc...	
89171		NaN
89172		NaN
89173	Collaborating with teammates	
89174		NaN
89175	Project planning;Committing and reviewing code...	
89176		NaN
89177		NaN
89178		NaN
89179	Deployment and monitoring	
89180	Project planning;Committing and reviewing code...	
89181		NaN
89182	Committing and reviewing code	
89183		NaN
AINextVery different \		
89164		NaN
89165	Writing code;Debugging and getting help	
89166		NaN
89167		NaN
89168		NaN
89169	Learning about a codebase;Writing code;Debuggi...	
89170		NaN
89171		NaN
89172		NaN
89173	Writing code	
89174		NaN
89175	Writing code;Testing code	
89176	Learning about a codebase;Documenting code	
89177		NaN
89178		NaN
89179		NaN
89180		NaN
89181		NaN
89182		NaN
89183	Learning about a codebase	
AINextNeither different nor similar \		
89164		NaN
89165		NaN
89166		NaN
89167		NaN
89168		NaN

89169		NaN
89170	Other (please describe)	
89171		NaN
89172		NaN
89173		NaN
89174		NaN
89175		NaN
89176	Project planning	
89177		NaN
89178		NaN
89179		NaN
89180		NaN
89181		NaN
89182	Debugging and getting help;Deployment and moni...	
89183		NaN

	AINextSomewhat similar	AINextVery similar	\
89164	NaN	NaN	
89165	NaN	NaN	
89166	NaN	NaN	
89167	NaN	NaN	
89168	Debugging and getting help	NaN	
89169	NaN	Testing code	
89170	NaN	NaN	
89171	NaN	NaN	
89172	NaN	NaN	
89173	NaN	NaN	
89174	NaN	NaN	
89175	NaN	NaN	
89176	NaN	NaN	
89177	NaN	NaN	
89178	NaN	NaN	
89179	NaN	NaN	
89180	NaN	NaN	
89181	NaN	NaN	
89182	NaN	NaN	
89183	NaN	NaN	

	AINextSomewhat different	TBranch	\
89164	NaN	Yes	
89165	Learning about a codebase;Project planning;Wri...	Yes	
89166	NaN	Yes	
89167	Project planning;Writing code;Debugging and ge...	Yes	
89168	NaN	NaN	
89169	NaN	Yes	
89170	NaN	Yes	
89171	NaN	Yes	

89172	Learning about a codebase;Documenting code;Deb...	Yes
89173	Writing code	Yes
89174	Writing code	Yes
89175	NaN	Yes
89176	Writing code	NaN
89177	NaN	Yes
89178	NaN	Yes
89179	Writing code;Documenting code;Debugging and ge...	No
89180	Learning about a codebase;Debugging and gettin...	NaN
89181	NaN	NaN
89182	Learning about a codebase;Writing code	NaN
89183	Writing code	Yes

	ICorPM	WorkExp	Knowledge_1 \
89164	Individual contributor	2.0	Agree
89165	Individual contributor	3.0	Agree
89166	Individual contributor	3.0	Agree
89167	Individual contributor	2.0	Agree
89168	NaN	NaN	NaN
89169	Individual contributor	30.0	NaN
89170	Individual contributor	9.0	Strongly agree
89171	Individual contributor	9.0	Strongly agree
89172	Individual contributor	24.0	Neither agree nor disagree
89173	Individual contributor	15.0	Agree
89174	Individual contributor	2.0	Agree
89175	Individual contributor	8.0	Agree
89176	NaN	NaN	NaN
89177	Individual contributor	12.0	Agree
89178	Individual contributor	22.0	Strongly agree
89179	NaN	NaN	NaN
89180	NaN	NaN	NaN
89181	NaN	NaN	NaN
89182	NaN	NaN	NaN
89183	People manager	14.0	Agree

	Knowledge_2	Knowledge_3 \
89164	Agree	Agree
89165	Neither agree nor disagree	Strongly disagree
89166	Agree	Neither agree nor disagree
89167	Neither agree nor disagree	Neither agree nor disagree
89168	NaN	NaN
89169	NaN	NaN
89170	Neither agree nor disagree	Disagree
89171	Strongly disagree	Strongly disagree
89172	Agree	Disagree
89173	Strongly agree	Disagree
89174	NaN	Neither agree nor disagree

89175	Neither agree nor disagree	Neither agree nor disagree
89176	NaN	NaN
89177	Strongly agree	Agree
89178	Neither agree nor disagree	Disagree
89179	NaN	NaN
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	Neither agree nor disagree	Neither agree nor disagree

	Knowledge_4	Knowledge_5 \
89164	Agree	Agree
89165	Agree	Strongly agree
89166	Agree	Agree
89167	Agree	Agree
89168	NaN	NaN
89169	NaN	NaN
89170	Strongly disagree	Strongly agree
89171	Strongly agree	Strongly agree
89172	Strongly agree	Strongly agree
89173	Neither agree nor disagree	Neither agree nor disagree
89174	Neither agree nor disagree	Agree
89175	Strongly agree	Strongly agree
89176	NaN	NaN
89177	Agree	Neither agree nor disagree
89178	Neither agree nor disagree	Agree
89179	NaN	NaN
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	Strongly agree	Strongly agree

	Knowledge_6	Knowledge_7 \
89164	Agree	Agree
89165	Neither agree nor disagree	Strongly agree
89166	Neither agree nor disagree	Neither agree nor disagree
89167	Agree	Strongly agree
89168	NaN	NaN
89169	NaN	NaN
89170	Strongly agree	Strongly agree
89171	Agree	Strongly agree
89172	Neither agree nor disagree	Neither agree nor disagree
89173	Neither agree nor disagree	Disagree
89174	Neither agree nor disagree	Agree
89175	Neither agree nor disagree	Agree
89176	NaN	NaN
89177	Agree	Agree

89178	Agree	Strongly agree
89179	NaN	NaN
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	Agree	Neither agree nor disagree

	Knowledge_8	Frequency_1	Frequency_2 \
89164	Agree	Never	1-2 times a week
89165	Strongly agree	1-2 times a week	3-5 times a week
89166	Neither agree nor disagree	1-2 times a week	1-2 times a week
89167	Agree	1-2 times a week	1-2 times a week
89168	NaN	NaN	NaN
89169	NaN	1-2 times a week	1-2 times a week
89170	Strongly disagree	3-5 times a week	10+ times a week
89171	Strongly agree	1-2 times a week	10+ times a week
89172	Agree	Never	10+ times a week
89173	Agree	Never	1-2 times a week
89174	Agree	Never	Never
89175	Agree	1-2 times a week	3-5 times a week
89176	NaN	NaN	NaN
89177	Agree	1-2 times a week	1-2 times a week
89178	Neither agree nor disagree	1-2 times a week	1-2 times a week
89179	NaN	NaN	NaN
89180	NaN	NaN	NaN
89181	NaN	NaN	NaN
89182	NaN	NaN	NaN
89183	Neither agree nor disagree	Never	1-2 times a week

	Frequency_3	TimeSearching \
89164	Never	Less than 15 minutes a day
89165	1-2 times a week	30-60 minutes a day
89166	1-2 times a week	15-30 minutes a day
89167	NaN	Over 120 minutes a day
89168	NaN	NaN
89169	Never	30-60 minutes a day
89170	1-2 times a week	15-30 minutes a day
89171	Never	15-30 minutes a day
89172	1-2 times a week	30-60 minutes a day
89173	Never	30-60 minutes a day
89174	3-5 times a week	30-60 minutes a day
89175	Never	60-120 minutes a day
89176	NaN	NaN
89177	Never	15-30 minutes a day
89178	1-2 times a week	15-30 minutes a day
89179	NaN	NaN
89180	NaN	NaN

89181	NaN	NaN
89182	NaN	NaN
89183	1-2 times a week	60-120 minutes a day

	TimeAnswering \
89164	Less than 15 minutes a day
89165	30-60 minutes a day
89166	15-30 minutes a day
89167	30-60 minutes a day
89168	NaN
89169	30-60 minutes a day
89170	30-60 minutes a day
89171	30-60 minutes a day
89172	30-60 minutes a day
89173	Less than 15 minutes a day
89174	30-60 minutes a day
89175	30-60 minutes a day
89176	NaN
89177	30-60 minutes a day
89178	60-120 minutes a day
89179	NaN
89180	NaN
89181	NaN
89182	NaN
89183	30-60 minutes a day

	ProfessionalTech \
89164	DevOps function;Microservices;Automated testin...
89165	Observability tools;Innersource initiative;Dev...
89166	DevOps function;Microservices;Continuous integ...
89167	Automated testing
89168	NaN
89169	AI-assisted technology tool(s)
89170	Automated testing;Observability tools;Innersou...
89171	None of these
89172	Innersource initiative
89173	Microservices
89174	Continuous integration (CI) and (more often) c...
89175	DevOps function;Continuous integration (CI) an...
89176	NaN
89177	Microservices;Developer portal or other centra...
89178	DevOps function;Microservices;Automated testin...
89179	NaN
89180	NaN
89181	NaN
89182	NaN
89183	DevOps function;Developer portal or other cent...

	Industry \
89164	Financial Services
89165	Information Services, IT, Software Development...
89166	Financial Services
89167	Retail and Consumer Services
89168	NaN
89169	Advertising Services
89170	Other
89171	Information Services, IT, Software Development...
89172	Information Services, IT, Software Development...
89173	NaN
89174	Manufacturing, Transportation, or Supply Chain
89175	Information Services, IT, Software Development...
89176	NaN
89177	Financial Services
89178	Insurance
89179	NaN
89180	NaN
89181	NaN
89182	NaN
89183	Information Services, IT, Software Development...

	SurveyLength	SurveyEase	ConvertedCompYearly
89164	Appropriate in length	Neither easy nor difficult	NaN
89165	Appropriate in length	Neither easy nor difficult	NaN
89166	Appropriate in length	Neither easy nor difficult	16917.0
89167	Appropriate in length	Neither easy nor difficult	15752.0
89168	Appropriate in length	NaN	NaN
89169	Too long	Difficult	NaN
89170	Appropriate in length	Neither easy nor difficult	64254.0
89171	Appropriate in length	Easy	61041.0
89172	Appropriate in length	Neither easy nor difficult	NaN
89173	Too long	Easy	NaN
89174	Too long	Easy	NaN
89175	Appropriate in length	Neither easy nor difficult	NaN
89176	Too long	Easy	NaN
89177	Too long	Neither easy nor difficult	NaN
89178	Appropriate in length	Easy	NaN
89179	Too long	Neither easy nor difficult	NaN
89180	Too long	Easy	NaN
89181	Too long	Neither easy nor difficult	NaN
89182	Appropriate in length	Neither easy nor difficult	NaN
89183	Appropriate in length	Easy	NaN

```
[ ]: #check the employment column
data['Employment']
```

```
[ ]: 0 NaN
      1 Employed, full-time
      2 Employed, full-time
      3 Employed, full-time
      4 Employed, full-time;Independent contractor, fr...
      ...
      89179 Employed, full-time;Independent contractor, fr...
      89180 Student, full-time;Employed, part-time
      89181 I prefer not to say
      89182 Employed, part-time;Student, part-time
      89183 Employed, full-time
      Name: Employment, Length: 89184, dtype: object
```

```
[ ]: #check the value_counts
      data.Employment.value_counts()
```

```
[ ]: Employment
      Employed, full-time
      53748
      Student, full-time
      7430
      Independent contractor, freelancer, or self-employed
      7076
      Employed, full-time;Independent contractor, freelancer, or self-employed
      4354
      Not employed, but looking for work
      2553
      ...
      Employed, full-time;Independent contractor, freelancer, or self-employed;Not
      employed, but looking for work;Student, full-time;Employed, part-time;Student,
      part-time;Not employed, and not looking for work 1
      Employed, full-time;Independent contractor, freelancer, or self-
      employed;Student, full-time;Student, part-time
      1
      Employed, full-time;Independent contractor, freelancer, or self-
      employed;Student, full-time;Retired
      1
      Employed, full-time;Independent contractor, freelancer, or self-employed;Not
      employed, but looking for work;Not employed, and not looking for work
      1
      Employed, full-time;Not employed, but looking for work;Employed, part-
      time;Student, part-time
      1
      Name: count, Length: 106, dtype: int64
```

```
[ ]: #find which operating system is most popular among developers
      data['OpSysProfessional use'].value_counts()
```

```
[ ]: OpSysProfessional use
Windows
15943
MacOS
12928
Ubuntu
5201
Windows;Windows Subsystem for Linux (WSL)
3934
Ubuntu;Windows
2795

...
Debian;iOS;iPadOS;MacOS;Red Hat;Windows
1
BSD;Other Linux-based;Red Hat
1
Arch;BSD;ChromeOS;Debian;iOS;iPadOS;MacOS;Red Hat;Ubuntu;Windows;Windows
Subsystem for Linux (WSL) 1
Android;Arch;BSD;Cygwin;Debian;Fedora;Other Linux-based;Ubuntu;Windows;Windows
Subsystem for Linux (WSL) 1
BSD;Red Hat;Solaris;Ubuntu;Windows
1
Name: count, Length: 2470, dtype: int64
```

```
[ ]: data.Employment[89182]
```

```
[ ]: 'Employed, part-time;Student, part-time'
```

```
[ ]: #find the value_counts in Devtype column
data['DevType'].value_counts()
```

```
[ ]: DevType
Developer, full-stack          25735
Developer, back-end           13745
Developer, front-end          5071
Developer, desktop or enterprise applications 3904
Other (please specify):       3080
Developer, mobile             2597
Engineering manager           2033
Student                       1996
Developer, embedded applications or devices 1845
Data scientist or machine learning specialist 1588
DevOps specialist             1387
Academic researcher           1354
Research & Development role   1353
Senior Executive (C-Suite, VP, etc.) 1332
Engineer, data                1248
```

Cloud infrastructure engineer	1036
Developer, game or graphics	866
Data or business analyst	837
System administrator	743
Project manager	589
Developer, QA or test	586
Security professional	474
Product manager	446
Engineer, site reliability	427
Educator	415
Scientist	351
Developer Experience	326
Blockchain	323
Hardware Engineer	286
Designer	281
Database administrator	257
Developer Advocate	212
Marketing or sales professional	149

Name: count, dtype: int64

```
[ ]: #find the developers who only use Mac os
      macos_users = data[data['OpSysProfessional use']=='MacOS']
```

```
[ ]: macos_users
```

```
[ ]:      ResponseId      Q120      MainBranch \
5          6 I agree I am a developer by profession
6          7 I agree I am a developer by profession
16         17 I agree I am a developer by profession
17         18 I agree I am a developer by profession
20         21 I agree I am a developer by profession
...         ...         ...
89134      89135 I agree I code primarily as a hobby
89141      89142 I agree I am a developer by profession
89153      89154 I agree I am a developer by profession
89155      89156 I agree I am a developer by profession
89156      89157 I agree I am a developer by profession
```

	Age	Employment	\
5	35-44 years old	Employed, full-time	
6	35-44 years old	Employed, full-time	
16	35-44 years old	Employed, full-time	
17	25-34 years old	Employed, full-time	
20	25-34 years old	Employed, full-time	
...	
89134	Under 18 years old	Student, full-time	
89141	25-34 years old	Employed, full-time	

89153	25-34 years old	Employed, full-time
89155	25-34 years old	Employed, full-time
89156	25-34 years old	Employed, full-time

		RemoteWork \
5		Remote
6		Remote
16	Hybrid (some remote, some in-person)	
17	Hybrid (some remote, some in-person)	
20		Remote
...		...
89134		NaN
89141		Remote
89153		Remote
89155		Remote
89156		Remote

		CodingActivities \
5	Hobby;Professional development or self-paced l...	
6	Hobby;Contribute to open-source projects;Profe...	
16		Hobby
17		Hobby
20	Hobby;Professional development or self-paced l...	
...		...
89134		NaN
89141	Hobby;Professional development or self-paced l...	
89153	I don't code outside of work	
89155	Hobby;Professional development or self-paced l...	
89156	Hobby;Contribute to open-source projects;Profe...	

		EdLevel \
5	Some college/university study without earning ...	
6	Some college/university study without earning ...	
16	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
17	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	
20	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
...		...
89134	Primary/elementary school	
89141	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
89153	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	
89155	Some college/university study without earning ...	
89156	Bachelor's degree (B.A., B.S., B.Eng., etc.)	

		LearnCode \
5	Books / Physical media;Colleague;Online Course...	
6	Friend or family member;Online Courses or Cert...	
16	Online Courses or Certification;Coding Bootcamp	

17	Books / Physical media;Colleague;Other online ...
20	Other online resources (e.g., videos, blogs, f...
...	...
89134	NaN
89141	Books / Physical media;On the job training;Oth...
89153	Books / Physical media;Colleague;Friend or fam...
89155	Online Courses or Certification;Other online r...
89156	Books / Physical media;Colleague;Online Course...

	LearnCodeOnline \
5	Formal documentation provided by the owner of ...
6	NaN
16	NaN
17	Formal documentation provided by the owner of ...
20	Formal documentation provided by the owner of ...
...	...
89134	NaN
89141	Formal documentation provided by the owner of ...
89153	Formal documentation provided by the owner of ...
89155	Formal documentation provided by the owner of ...
89156	Formal documentation provided by the owner of ...

	LearnCodeCoursesCert	YearsCode	YearsCodePro \
5	Other	21	21
6	Udemy	4	3
16	NaN	4	2
17	NaN	11	6
20	NaN	6	6
...
89134	NaN	NaN	NaN
89141	NaN	14	11
89153	Other;Coursera	10	6
89155	Codecademy;Udemy;Coursera;Udacity	1	Less than 1 year
89156	Coursera	12	8

	DevType \
5	Developer, back-end
6	Developer, full-stack
16	Developer, front-end
17	Developer, front-end
20	Developer, front-end
...	...
89134	NaN
89141	Developer, back-end
89153	Data scientist or machine learning specialist
89155	Developer, full-stack
89156	Engineering manager

	OrgSize	PurchaseInfluence	TechList \
5	100 to 499 employees	I have little or no influence	NaN
6	1,000 to 4,999 employees	I have little or no influence	NaN
16	1,000 to 4,999 employees	I have some influence	Given a list
17	500 to 999 employees	I have little or no influence	NaN
20	20 to 99 employees	I have some influence	Investigate
...
89134	NaN	NaN	NaN
89141	5,000 to 9,999 employees	I have little or no influence	NaN
89153	100 to 499 employees	I have little or no influence	NaN
89155	20 to 99 employees	I have little or no influence	NaN
89156	100 to 499 employees	I have little or no influence	NaN

	BuyNewTool \
5	Start a free trial;Ask developers I know/work ...
6	Ask developers I know/work with;Read ratings o...
16	Start a free trial;Ask developers I know/work ...
17	Start a free trial;Ask developers I know/work ...
20	Start a free trial;Ask developers I know/work ...
...	...
89134	NaN
89141	Start a free trial;Ask developers I know/work ...
89153	NaN
89155	Ask developers I know/work with;Visit develope...
89156	NaN

	Country \
5	United Kingdom of Great Britain and Northern I...
6	United States of America
16	Sweden
17	France
20	United Kingdom of Great Britain and Northern I...
...	...
89134	United States of America
89141	United States of America
89153	Poland
89155	Canada
89156	United States of America

	Currency	CompTotal \
5	GBP\tPound sterling	78000.0
6	USD\tUnited States dollar	135000.0
16	SEK\tSwedish krona	490000.0
17	EUR European Euro	55000.0
20	GBP\tPound sterling	49000.0
...

89134		NaN	NaN
89141	USD\tUnited States dollar		250000.0
89153	PLN\tPolish zloty		NaN
89155	CAD\tCanadian dollar		85000.0
89156	USD\tUnited States dollar		195000.0
LanguageHaveWorkedWith \			
5	Bash/Shell (all shells);HTML/CSS;JavaScript;Ru...		
6	Ada;Clojure;Elixir;Go;HTML/CSS;Java;JavaScript...		
16	JavaScript;TypeScript		
17	HTML/CSS;JavaScript;SQL;TypeScript		
20	JavaScript;PHP;Ruby;TypeScript		
...	...		
89134	Bash/Shell (all shells);C;C++;Elixir;Go;Haskel...		
89141	C#;C++;Java;Ruby;Scala;SQL;TypeScript		
89153	Bash/Shell (all shells);Python;SQL		
89155	Bash/Shell (all shells);HTML/CSS;JavaScript;Ru...		
89156	Bash/Shell (all shells);C;C++;JavaScript;Julia		
LanguageWantToWorkWith \			
5	Go;Rust		
6	NaN		
16	TypeScript		
17	Go;HTML/CSS;JavaScript;Rust;SQL;TypeScript		
20	TypeScript		
...	...		
89134	Assembly;Bash/Shell (all shells);C;Clojure;Eli...		
89141	C#;Dart;Rust		
89153	Python;Rust;SQL		
89155	Bash/Shell (all shells);C#;Go;HTML/CSS;JavaScr...		
89156	Julia;Zig		
DatabaseHaveWorkedWith \			
5	BigQuery;Cloud Firestore;PostgreSQL;Redis		
6	MariaDB;Microsoft SQL Server;MySQL;PostgreSQL;...		
16	Elasticsearch		
17	MongoDB;MySQL;Oracle;PostgreSQL		
20	MySQL		
...	...		
89134	Cloud Firestore;Dynamodb;Firebase Realtime Dat...		
89141	Elasticsearch;InfluxDB;MongoDB;MySQL;Snowflake		
89153	BigQuery		
89155	Clickhouse;Cloud Firestore;MongoDB;MySQL;Postg...		
89156	Cosmos DB;PostgreSQL		
DatabaseWantToWorkWith \			
5	NaN		

6		Datomic	
16		Elasticsearch	
17		NaN	
20		NaN	
...		...	
89134	Cassandra;Cockroachdb;Elasticsearch;MongoDB;Ne...		
89141	InfluxDB;Microsoft SQL Server;MySQL		
89153	BigQuery;MongoDB;Neo4J		
89155	Cloud Firestore;MongoDB;MySQL;PostgreSQL;SQLite...		
89156	Cockroachdb;DuckDB;Snowflake		
		PlatformHaveWorkedWith \	
5	Amazon Web Services (AWS);Cloudflare;Google Cloud		
6	Amazon Web Services (AWS);Digital Ocean		
16	Firebase;Microsoft Azure		
17	Netlify;Vercel		
20	Amazon Web Services (AWS);Cloudflare;Netlify		
...		...	
89134	Amazon Web Services (AWS);Cloudflare;Digital O...		
89141	Amazon Web Services (AWS)		
89153	Google Cloud		
89155	Firebase;Google Cloud;Heroku;Vercel		
89156	Amazon Web Services (AWS);Hetzner;Microsoft Azure		
		PlatformWantToWorkWith \	
5		NaN	
6		Vercel	
16		Vercel	
17		Netlify;Vercel	
20		Amazon Web Services (AWS)	
...		...	
89134	Amazon Web Services (AWS);Cloudflare;Google Cl...		
89141	Amazon Web Services (AWS);Google Cloud;Microso...		
89153	Google Cloud		
89155	Firebase;Google Cloud;Vercel		
89156	Amazon Web Services (AWS)		
		WebframeHaveWorkedWith \	
5	Angular;Express;NestJS;Node.js		
6	AngularJS;jQuery;Node.js;Phoenix;Ruby on Rails...		
16	Express;Gatsby;Next.js;Node.js;React		
17	Express;Next.js;React		
20	Laravel;Next.js;React;Ruby on Rails		
...		...	
89134	Angular;Deno;Django;Express;Flask;Next.js;Node...		
89141	ASP.NET;ASP.NET CORE;Ruby on Rails		
89153	NaN		

89155	Express;jQuery;Next.js;Node.js;React;Ruby on R...	
89156	jQuery;Node.js	
		WebframeWantToWorkWith \
5		NaN
6		NaN
16	Next.js;Node.js;React;Remix;Ruby on Rails	
17	Express;Next.js;React	
20	Next.js;React	
...		...
89134	Angular;FastAPI;Fastify;Next.js;Node.js;Nuxt.j...	
89141	ASP.NET CORE;React;Ruby on Rails	
89153		NaN
89155	Angular;AngularJS;Django;Express;jQuery;Next.j...	
89156		NaN
		MiscTechHaveWorkedWith \
5		NaN
6	RabbitMQ;Spring Framework	
16	React Native	
17		NaN
20	React Native	
...		...
89134	Electron;Keras;NumPy;Opencv;Pandas;Qt;SwiftUI;...	
89141	.NET (5+) ;.NET Framework (1.0 - 4.8);Apache K...	
89153	NumPy;Pandas	
89155		NaN
89156		NaN
		MiscTechWantToWorkWith \
5		NaN
6		NaN
16	React Native	
17		NaN
20	React Native	
...		...
89134	Hadoop;Ionic;Keras;NumPy;Opencv;Pandas;SwiftUI...	
89141	.NET (5+) ;.NET Framework (1.0 - 4.8);.NET MAU...	
89153	NumPy;Pandas;Torch/PyTorch	
89155		NaN
89156		NaN
		ToolsTechHaveWorkedWith \
5	Docker;Homebrew;Kubernetes;npm;pnpm;Terraform	
6	Bun;Cargo;Chocolatey;Docker;Homebrew;Kubernet...	
16	npm;Yarn	
17	npm;pnpm;Webpack;Yarn	

20		NaN
...		...
89134	Ansible;APT;Cargo;Docker;GNU GCC;Make;npm;Terr...	
89141	Dagger;Docker;Kubernetes;MSBuild;MSVC;Terrafor...	
89153		Docker
89155	Docker;Homebrew;Kubernetes;Make;npm;Webpack;Yarn	
89156		NaN
	ToolsTechWantToWorkWith	\
5		Cargo
6		NaN
16		Vite;Yarn
17		npm;pnpm;Webpack;Yarn
20		NaN
...		...
89134	Ansible;APT;Cargo;Docker;GNU GCC;Kubernetes;Ma...	
89141	Docker;Kubernetes;MSBuild;Visual Studio Solution	
89153		Ansible;Docker;Terraform
89155	Docker;Homebrew;Kubernetes;Make;npm;Unity 3D;W...	
89156		NaN
	NEWCollabToolsHaveWorkedWith	\
5		Helix;Neovim
6	Emacs;IntelliJ IDEA;RubyMine;Visual Studio Cod...	
16		Visual Studio Code
17		Visual Studio Code
20		Visual Studio Code
...		...
89134		Neovim;Vim;Xcode
89141	IntelliJ IDEA;Notepad++;RubyMine;Sublime Text;...	
89153	Jupyter Notebook/JupyterLab;PyCharm;Visual Stu...	
89155		Nano;PyCharm;Vim;Visual Studio Code
89156		Vim;Visual Studio Code
	NEWCollabToolsWantToWorkWith	\
5		NaN
6		NaN
16		Visual Studio Code
17		Visual Studio Code
20		Visual Studio Code
...		...
89134		Neovim;Vim;Xcode
89141	Notepad++;Sublime Text;Visual Studio;Visual St...	
89153		Jupyter Notebook/JupyterLab;PyCharm
89155		Nano;Visual Studio Code
89156		Vim;Visual Studio Code

	OpSysPersonal use	OpSysProfessional use	\
5	Other (Please Specify):		MacOS
6	MacOS;Windows		MacOS
16	MacOS		MacOS
17	MacOS		MacOS
20	iOS;iPadOS;MacOS		MacOS
...	
89134	MacOS		MacOS
89141	Windows		MacOS
89153	MacOS		MacOS
89155	Windows Subsystem for Linux (WSL)		MacOS
89156	MacOS		MacOS

	OfficeStackAsyncHaveWorkedWith	\
5	Jira;Markdown File;Notion;Stack Overflow for T...	
6	Jira	
16	GitHub Discussions;Jira;Notion	
17	GitHub Discussions;Jira;Miro;Notion	
20	Jira;Miro;Notion;Trello	
...	...	
89134	Airtable;Markdown File;Notion	
89141	Basecamp;Confluence;Jira;Miro	
89153	Confluence	
89155	Jira;Notion	
89156	Jira	

	OfficeStackAsyncWantToWorkWith	\
5	NaN	
6	NaN	
16	GitHub Discussions	
17	GitHub Discussions;Jira;Miro;Notion	
20	Jira;Miro	
...	...	
89134	Markdown File;Notion	
89141	Confluence;Jira;Miro;Stack Overflow for Teams	
89153	Confluence	
89155	Notion	
89156	Airtable	

	OfficeStackSyncHaveWorkedWith	\
5	Google Meet;Microsoft Teams;Slack;Zoom	
6	Slack	
16	Microsoft Teams;Slack	
17	Slack;Whatsapp;Zoom	
20	Microsoft Teams;Slack	
...	...	
89134	Discord;Google Chat;Google Meet;Zoom	

89141	Slack;Zoom
89153	Google Meet;Slack
89155	Discord;Slack;Zoom
89156	Google Meet;Slack;Zoom

	OfficeStackSyncWantToWorkWith \
5	NaN
6	NaN
16	Slack
17	Slack;Whatsapp;Zoom
20	NaN
...	...
89134	Discord
89141	Discord;Google Meet;Microsoft Teams;Slack
89153	Google Meet;Slack
89155	Discord;Slack;Zoom
89156	Slack;Zoom

	AIsearchHaveWorkedWith	AIsearchWantToWorkWith \
5	ChatGPT;Google Bard AI;Neeva AI	NaN
6	ChatGPT	NaN
16	Bing AI;ChatGPT	ChatGPT
17	ChatGPT	ChatGPT
20	ChatGPT	ChatGPT
...
89134	ChatGPT;Google Bard AI	ChatGPT
89141	Bing AI;ChatGPT	Bing AI;ChatGPT
89153	NaN	NaN
89155	ChatGPT	ChatGPT
89156	ChatGPT	ChatGPT

	AIDevHaveWorkedWith	AIDevWantToWorkWith \
5	GitHub Copilot;Tabnine	NaN
6	GitHub Copilot	NaN
16	NaN	NaN
17	GitHub Copilot	GitHub Copilot
20	NaN	NaN
...
89134	GitHub Copilot;Tabnine	GitHub Copilot
89141	NaN	NaN
89153	NaN	NaN
89155	GitHub Copilot	GitHub Copilot
89156	GitHub Copilot	GitHub Copilot;Replit Ghostwriter

	NEWSOSites	SOVisitFreq \
5	Stack Overflow	Daily or almost daily
6	Stack Overflow	A few times per month or weekly

16	Stack Overflow	Daily or almost daily
17	Stack Overflow	Multiple times per day
20	Stack Overflow	A few times per week
...
89134	Stack Overflow;Stack Exchange	A few times per month or weekly
89141	Stack Overflow;Stack Exchange	A few times per week
89153	Stack Overflow;Stack Exchange	A few times per week
89155	Stack Overflow	Multiple times per day
89156	Stack Overflow;Stack Exchange	Less than once per month or monthly

	SOAccount \
5	Yes
6	Yes
16	Not sure/can't remember
17	No
20	No
...	...
89134	Not sure/can't remember
89141	Yes
89153	No
89155	No
89156	Yes

	SOPartFreq	SOComm \
5	I have never participated in Q&A on Stack Over...	No, not at all
6	Less than once per month or monthly	Neutral
16		NaN No, not at all
17		NaN No, not really
20		NaN No, not really
...
89134		NaN No, not really
89141	A few times per month or weekly	Yes, somewhat
89153		NaN No, not really
89155		NaN No, not really
89156	Less than once per month or monthly	No, not really

	SOAI \
5	NaN
6	Neutral
16	NaN
17	I use both SO and ChatGPT. When I really want ...
20	NaN
...	...
89134	NaN
89141	I bet StackOverflow could benefit from leverag...
89153	It's a good direction. AI can help with text e...
89155	Go for it

89156 Sounds generally helpful, yes. It could also d...

	AISelect	AI Sent \
5	Yes	Favorable
6	Yes	Unfavorable
16	Yes	Very favorable
17	Yes	Very favorable
20	Yes	Favorable
...
89134	Yes	Indifferent
89141	Yes	Favorable
89153	No, but I plan to soon	Favorable
89155	Yes	Very favorable
89156	Yes	Favorable

	AI Acc \
5	Greater efficiency
6	Improve accuracy in coding
16	Increase productivity; Greater efficiency; Speed...
17	Greater efficiency; Speed up learning
20	Increase productivity; Greater efficiency; Speed...
...	...
89134	Greater efficiency
89141	Speed up learning; Improve accuracy in coding
89153	NaN
89155	Increase productivity; Greater efficiency; Speed...
89156	Increase productivity; Improve collaboration

	AI Ben \
5	Somewhat trust
6	Somewhat distrust
16	Somewhat trust
17	Neither trust nor distrust
20	Somewhat trust
...	...
89134	Somewhat distrust
89141	Neither trust nor distrust
89153	Somewhat trust
89155	Somewhat trust
89156	Somewhat distrust

	AIToolInterested in Using \
5	Learning about a codebase; Documenting code; Tes...
6	NaN
16	Debugging and getting help
17	Learning about a codebase; Project planning; Dep...
20	NaN

```

...
89134 NaN
89141 Learning about a codebase;Documenting code;Deb...
89153 NaN
89155 NaN
89156 Learning about a codebase;Debugging and gettin...

```

```

AIToolCurrently Using \
5 Writing code;Debugging and getting help
6 Writing code;Debugging and getting help
16 Writing code
17 Writing code;Documenting code;Debugging and ge...
20 Debugging and getting help

```

```

...
89134 NaN
89141 Writing code;Testing code
89153 NaN
89155 Learning about a codebase;Project planning;Wri...
89156 Writing code;Documenting code

```

```

AIToolNot interested in Using \
5 Project planning
6 Learning about a codebase;Project planning;Wri...
16 NaN
17 NaN
20 NaN

```

```

...
89134 NaN
89141 Project planning;Committing and reviewing code...
89153 NaN
89155 NaN
89156 Project planning;Committing and reviewing code...

```

```

AINextVery different \
5 NaN
6 NaN
16 NaN
17 NaN
20 NaN

```

```

...
89134 NaN
89141 NaN
89153 NaN
89155 Learning about a codebase;Writing code;Debuggi...
89156 NaN

```

AINextNeither different nor similar AINextSomewhat similar \

5		NaN		NaN
6		NaN		NaN
16		NaN		NaN
17		NaN		NaN
20		NaN		NaN
...	
89134		NaN		NaN
89141		NaN	Writing code;Testing	code
89153		NaN		NaN
89155		NaN		NaN
89156		NaN		NaN

	AINextVery similar	AINextSomewhat different	TBranch	\
5	NaN	NaN	Yes	
6	NaN	NaN	Yes	
16	NaN	NaN	No	
17	NaN	NaN	Yes	
20	NaN	NaN	Yes	
...	
89134	NaN	NaN	NaN	
89141	NaN	NaN	Yes	
89153	NaN	NaN	Yes	
89155	NaN	Project planning	No	
89156	NaN	Writing code;Documenting code	Yes	

	ICorPM	WorkExp	Knowledge_1	\
5	Individual contributor	22.0	Agree	
6	Individual contributor	4.0	Strongly agree	
16	NaN	NaN	NaN	
17	Individual contributor	6.0	Strongly agree	
20	Individual contributor	6.0	Agree	
...	
89134	NaN	NaN	NaN	
89141	Individual contributor	11.0	Agree	
89153	Individual contributor	6.0	Strongly agree	
89155	NaN	NaN	NaN	
89156	People manager	8.0	Strongly agree	

	Knowledge_2	Knowledge_3	\
5	Strongly agree	Disagree	
6	Agree	Neither agree nor disagree	
16	NaN	NaN	
17	Neither agree nor disagree	Agree	
20	Agree	Agree	
...	
89134	NaN	NaN	
89141	Agree	Neither agree nor disagree	

89153	Neither agree nor disagree	Neither agree nor disagree
89155	NaN	NaN
89156	Agree	Agree

	Knowledge_4	Knowledge_5 \
5	Neither agree nor disagree	Strongly disagree
6	Neither agree nor disagree	Agree
16	NaN	NaN
17	Agree	Agree
20	Agree	Agree
...
89134	NaN	NaN
89141	Neither agree nor disagree	Neither agree nor disagree
89153	Agree	Strongly agree
89155	NaN	NaN
89156	Agree	Agree

	Knowledge_6	Knowledge_7 \
5	Neither agree nor disagree	Disagree
6	Agree	Agree
16	NaN	NaN
17	Disagree	Neither agree nor disagree
20	Agree	Agree
...
89134	NaN	NaN
89141	Agree	Agree
89153	Strongly disagree	Disagree
89155	NaN	NaN
89156	Strongly agree	Neither agree nor disagree

	Knowledge_8	Frequency_1	Frequency_2 \
5	Disagree	1-2 times a week	1-2 times a week
6	Neither agree nor disagree	1-2 times a week	3-5 times a week
16	NaN	NaN	NaN
17	Disagree	1-2 times a week	1-2 times a week
20	Agree	1-2 times a week	1-2 times a week
...
89134	NaN	NaN	NaN
89141	Disagree	1-2 times a week	3-5 times a week
89153	Agree	1-2 times a week	1-2 times a week
89155	NaN	NaN	NaN
89156	Neither agree nor disagree	1-2 times a week	10+ times a week

	Frequency_3	TimeSearching	TimeAnswering \
5	3-5 times a week	30-60 minutes a day	15-30 minutes a day
6	1-2 times a week	Less than 15 minutes a day	15-30 minutes a day
16	NaN	NaN	NaN

17	1-2 times a week	60-120 minutes a day	30-60 minutes a day
20	1-2 times a week	Over 120 minutes a day	30-60 minutes a day
...
89134	NaN	NaN	NaN
89141	1-2 times a week	60-120 minutes a day	15-30 minutes a day
89153	1-2 times a week	60-120 minutes a day	Over 120 minutes a day
89155	NaN	NaN	NaN
89156	3-5 times a week	30-60 minutes a day	Over 120 minutes a day

	ProfessionalTech \
5	DevOps function;Microservices;Observability to...
6	Microservices;Automated testing;Continuous int...
16	NaN
17	DevOps function;Microservices;Automated testin...
20	DevOps function;Microservices;Automated testin...
...	...
89134	NaN
89141	DevOps function;Automated testing;Observabilit...
89153	DevOps function;Microservices;Automated testin...
89155	NaN
89156	Automated testing;Observability tools;Continuo...

	Industry \
5	Other
6	Information Services, IT, Software Development...
16	NaN
17	Retail and Consumer Services
20	Higher Education
...	...
89134	NaN
89141	Financial Services
89153	Other
89155	NaN
89156	Information Services, IT, Software Development...

	SurveyLength	SurveyEase	ConvertedCompYearly
5	Appropriate in length	Neither easy nor difficult	96828.0
6	Appropriate in length	Easy	135000.0
16	Appropriate in length	Easy	45149.0
17	Appropriate in length	Easy	58899.0
20	Appropriate in length	Easy	60828.0
...
89134	Appropriate in length	Easy	NaN
89141	Appropriate in length	Easy	250000.0
89153	Appropriate in length	Easy	NaN
89155	Appropriate in length	Easy	63199.0
89156	Appropriate in length	Neither easy nor difficult	195000.0

[12928 rows x 84 columns]

```
[ ]: # Find developer count for each country
data['Country'].value_counts()
```

```
[ ]: Country
United States of America      18647
Germany                      7328
India                        5625
United Kingdom of Great Britain and Northern Ireland  5552
Canada                      3507
...
Saint Kitts and Nevis        1
Marshall Islands             1
Samoa                        1
Central African Republic     1
San Marino                   1
Name: count, Length: 185, dtype: int64
```

```
[ ]: #find developers in USA
usa_developers = data[data['Country']=='United States of America']
usa_developers
```

```
[ ]:      ResponseId      Q120      MainBranch \
1          2  I agree      I am a developer by profession
2          3  I agree      I am a developer by profession
3          4  I agree      I am a developer by profession
6          7  I agree      I am a developer by profession
7          8  I agree      I am a developer by profession
...
89150      89151  I agree  I used to be a developer by profession, but no...
89154      89155  I agree      I am a developer by profession
89156      89157  I agree      I am a developer by profession
89175      89176  I agree      I am a developer by profession
89178      89179  I agree      I am a developer by profession
```

```
      Age      Employment \
1  25-34 years old  Employed, full-time
2  45-54 years old  Employed, full-time
3  25-34 years old  Employed, full-time
6  35-44 years old  Employed, full-time
7  25-34 years old  Employed, full-time
...
89150  55-64 years old  Employed, full-time
89154  35-44 years old  Employed, full-time
89156  25-34 years old  Employed, full-time
```

89175 25-34 years old Employed, full-time
 89178 45-54 years old Employed, full-time

RemoteWork \

1		Remote
2	Hybrid (some remote, some in-person)	
3	Hybrid (some remote, some in-person)	
6		Remote
7		Remote
...		...
89150		Remote
89154	Hybrid (some remote, some in-person)	
89156		Remote
89175		Remote
89178		Remote

CodingActivities \

1	Hobby;Contribute to open-source projects;Boots...	
2	Hobby;Professional development or self-paced l...	
3		Hobby
6	Hobby;Contribute to open-source projects;Profe...	
7		Hobby
...		...
89150	Hobby;Contribute to open-source projects	
89154	I don't code outside of work	
89156	Hobby;Contribute to open-source projects;Profe...	
89175	I don't code outside of work	
89178		Hobby

EdLevel \

1	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
2	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
3	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
6	Some college/university study without earning ...	
7	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
...		...
89150	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
89154	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
89156	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
89175	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
89178	Bachelor's degree (B.A., B.S., B.Eng., etc.)	

LearnCode \

1	Books / Physical media;Colleague;Friend or fam...	
2	Books / Physical media;Colleague;On the job tr...	
3	Colleague;Friend or family member;Other online...	
6	Friend or family member;Online Courses or Cert...	

7	Books / Physical media;Online Courses or Certi...
...	...
89150	Books / Physical media;Online Courses or Certi...
89154	Online Courses or Certification;On the job tra...
89156	Books / Physical media;Colleague;Online Course...
89175	Hackathons (virtual or in-person);Online Cours...
89178	Online Courses or Certification;On the job tra...

	LearnCodeOnline \
1	Formal documentation provided by the owner of ...
2	Formal documentation provided by the owner of ...
3	Formal documentation provided by the owner of ...
6	NaN
7	Formal documentation provided by the owner of ...
...	...
89150	Formal documentation provided by the owner of ...
89154	Formal documentation provided by the owner of ...
89156	Formal documentation provided by the owner of ...
89175	Formal documentation provided by the owner of ...
89178	Formal documentation provided by the owner of ...

	LearnCodeCoursesCert	YearsCode	YearsCodePro	\
1	Other	18	9	
2	NaN	27	23	
3	NaN	12	7	
6	Udemy	4	3	
7	Codecademy;edX	5	3	
...	
89150	Codecademy	25	8	
89154	Codecademy;edX;Pluralsight	20	8	
89156	Coursera	12	8	
89175	Codecademy;Udemy;Pluralsight;Udacity	10	8	
89178	edX;Udemy;Pluralsight;Udacity	25	22	

	DevType	OrgSize	\
1	Senior Executive (C-Suite, VP, etc.)	2 to 9 employees	
2	Developer, back-end	5,000 to 9,999 employees	
3	Developer, front-end	100 to 499 employees	
6	Developer, full-stack	1,000 to 4,999 employees	
7	Developer, full-stack	10 to 19 employees	
...	
89150	Developer Experience	NaN	
89154	Developer, front-end	2 to 9 employees	
89156	Engineering manager	100 to 499 employees	
89175	Developer, mobile	10 to 19 employees	
89178	Developer, full-stack	10,000 or more employees	

	PurchaseInfluence	TechList \
1	I have a great deal of influence	Investigate
2	I have some influence	Given a list
3	I have some influence	Investigate
6	I have little or no influence	NaN
7	I have some influence	Investigate
...
89150	NaN	Investigate
89154	I have some influence	Investigate
89156	I have little or no influence	NaN
89175	I have some influence	Investigate
89178	I have little or no influence	NaN

	BuyNewTool \
1	Start a free trial;Ask developers I know/work ...
2	Start a free trial;Ask developers I know/work ...
3	Start a free trial;Ask developers I know/work ...
6	Ask developers I know/work with;Read ratings o...
7	Start a free trial;Ask developers I know/work ...
...	...
89150	Start a free trial;Ask developers I know/work ...
89154	Start a free trial;Ask developers I know/work ...
89156	NaN
89175	Start a free trial;Ask developers I know/work ...
89178	Start a free trial;Ask developers I know/work ...

	Country	Currency	CompTotal \
1	United States of America	USD\tUnited States dollar	285000.0
2	United States of America	USD\tUnited States dollar	250000.0
3	United States of America	USD\tUnited States dollar	156000.0
6	United States of America	USD\tUnited States dollar	135000.0
7	United States of America	USD\tUnited States dollar	80000.0
...
89150	United States of America	NaN	NaN
89154	United States of America	USD\tUnited States dollar	75000.0
89156	United States of America	USD\tUnited States dollar	195000.0
89175	United States of America	USD\tUnited States dollar	135000.0
89178	United States of America	USD\tUnited States dollar	212021.0

	LanguageHaveWorkedWith \
1	HTML/CSS;JavaScript;Python
2	Bash/Shell (all shells);Go
3	Bash/Shell (all shells);HTML/CSS;JavaScript;PH...
6	Ada;Clojure;Elixir;Go;HTML/CSS;Java;JavaScript...
7	Go;HTML/CSS;JavaScript;Python;Rust;SQL;TypeScript
...	...
89150	SQL

```

89154 HTML/CSS;JavaScript;PHP;TypeScript;Visual Basi...
89156     Bash/Shell (all shells);C;C++;JavaScript;Julia
89175                                     Java;Kotlin
89178                                     JavaScript;TypeScript

                                     LanguageWantToWorkWith \
1      Bash/Shell (all shells);C#;Dart;Elixir;GDScrip...
2                                     Haskell;OCaml;Rust
3      Bash/Shell (all shells);HTML/CSS;JavaScript;Ru...
6                                     NaN
7      Elixir;Go;Julia;Python;R;Rust;Scala;SQL;TypeSc...
...                                     ...
89150                                     HTML/CSS;JavaScript;Ruby
89154                                     HTML/CSS;JavaScript;TypeScript
89156                                     Julia;Zig
89175                                     Dart;Java;JavaScript;Kotlin
89178                                     Go;JavaScript;Python;TypeScript

                                     DatabaseHaveWorkedWith \
1                                     Supabase
2                                     NaN
3                                     PostgreSQL;Redis
6      MariaDB;Microsoft SQL Server;MySQL;PostgreSQL;...
7      Dynamodb;MongoDB;MySQL;Redis;SQLite
...                                     ...
89150                                     PostgreSQL
89154                                     NaN
89156                                     Cosmos DB;PostgreSQL
89175                                     H2;MongoDB;MySQL;SQLite
89178                                     Dynamodb

                                     DatabaseWantToWorkWith \
1      Firebase Realtime Database;Supabase
2                                     NaN
3      PostgreSQL;Redis
6      Datomic
7      BigQuery;Cockroachdb;DuckDB;Elasticsearch;Mong...
...                                     ...
89150                                     PostgreSQL
89154                                     NaN
89156                                     Cockroachdb;DuckDB;Snowflake
89175                                     MySQL;SQLite
89178                                     Dynamodb

                                     PlatformHaveWorkedWith \
1      Amazon Web Services (AWS);Netlify;Vercel
2      Amazon Web Services (AWS);Google Cloud;OpenSta...

```

3		Cloudflare;Heroku	
6		Amazon Web Services (AWS);Digital Ocean	
7		Amazon Web Services (AWS);Fly.io;Netlify;Vercel	
...		...	
89150		NaN	
89154		Netlify	
89156		Amazon Web Services (AWS);Hetzner;Microsoft Azure	
89175		VMware	
89178		Amazon Web Services (AWS)	
		PlatformWantToWorkWith	\
1		Fly.io;Netlify;Render	
2		NaN	
3		Cloudflare;Heroku	
6		Vercel	
7		Amazon Web Services (AWS);Digital Ocean;Fly.io...	
...		...	
89150		NaN	
89154		Netlify	
89156		Amazon Web Services (AWS)	
89175		NaN	
89178		Amazon Web Services (AWS)	
		WebframeHaveWorkedWith	\
1		Next.js;React;Remix;Vue.js	
2		NaN	
3		Node.js;React;Ruby on Rails;Vue.js;WordPress	
6		AngularJS;jQuery;Node.js;Phoenix;Ruby on Rails...	
7		Angular;Express;Next.js;Node.js;React	
...		...	
89150		NaN	
89154		Next.js;React;WordPress	
89156		jQuery;Node.js	
89175		Spring Boot	
89178		Express;Node.js;Spring Boot	
		WebframeWantToWorkWith	\
1		Deno;Elm;Nuxt.js;React;Svelte;Vue.js	
2		NaN	
3		Node.js;Ruby on Rails;Vue.js	
6		NaN	
7		Deno;FastAPI;Fastify;Flask;NestJS;Next.js;Node...	
...		...	
89150		NaN	
89154		React	
89156		NaN	
89175		NaN	

```

89178                                     Node.js

MiscTechHaveWorkedWith \
1      Electron;React Native;Tauri
2                                     NaN
3                                     NaN
6      RabbitMQ;Spring Framework
7      NumPy;Pandas;Scikit-Learn;Tauri;TensorFlow
...                                     ...
89150      Hadoop
89154      NaN
89156      NaN
89175      Opencv;OpenGL;Spring Framework
89178      Apache Kafka

MiscTechWantToWorkWith \
1      Capacitor;Electron;Tauri;Uno Platform;Xamarin
2                                     NaN
3                                     NaN
6                                     NaN
7      .NET MAUI;Apache Kafka;Apache Spark;Hugging Fa...
...                                     ...
89150      NaN
89154      NaN
89156      NaN
89175      Xamarin
89178      NaN

ToolsTechHaveWorkedWith \
1      Docker;Kubernetes;npm;Pip;Vite;Webpack;Yarn
2      Cargo;Docker;Kubernetes;Make;Nix
3      Homebrew;npm;Vite;Webpack;Yarn
6      Bun;Cargo;Chocolatey;Docker;Homebrew;Kubernete...
7      Ansible;Cargo;Docker;Homebrew;Make;npm;Pip;pnp...
...                                     ...
89150      Chocolatey;Docker;Homebrew;npm
89154      Docker;npm;Webpack;Yarn
89156      NaN
89175      Docker;Gradle;Maven (build tool)
89178      Docker;Homebrew;Yarn

ToolsTechWantToWorkWith \
1      Godot;npm;pnpm;Unity 3D;Unreal Engine;Vite;Web...
2      Cargo;Kubernetes;Nix
3      Homebrew;npm;Vite
6      NaN
7      Cargo;Dagger;Docker;Homebrew;Kubernetes;Make;n...

```

```

...
89150 Docker;Homebrew;Kubernetes
89154 npm;Webpack;Yarn
89156 NaN
89175 Gradle
89178 Docker;Godot;Homebrew;Vite;Yarn

NEWCollabToolsHaveWorkedWith \
1 Vim;Visual Studio Code
2 Emacs;Helix
3 IntelliJ IDEA;Vim;Visual Studio Code;WebStorm
6 Emacs;IntelliJ IDEA;RubyMine;Visual Studio Cod...
7 DataGrip;IPython;Neovim;Vim;Visual Studio Code
...
89150 Emacs;Visual Studio Code
89154 Visual Studio;Visual Studio Code
89156 Vim;Visual Studio Code
89175 Android Studio;Atom;Eclipse;IntelliJ IDEA;Netb...
89178 IntelliJ IDEA;Nano;Visual Studio Code

NEWCollabToolsWantToWorkWith \
1 Vim;Visual Studio Code
2 Emacs;Helix
3 IntelliJ IDEA;Vim;WebStorm
6 NaN
7 IPython;Neovim;RStudio;Visual Studio Code
...
89150 Emacs;Visual Studio Code
89154 Visual Studio Code
89156 Vim;Visual Studio Code
89175 Android Studio;IntelliJ IDEA;Notepad++
89178 Visual Studio Code

OpSysPersonal use \
1 iOS;iPadOS;MacOS;Windows;Windows Subsystem for...
2 MacOS;Other Linux-based
3 iOS;iPadOS;MacOS
6 MacOS;Windows
7 MacOS;Ubuntu;Windows
...
89150 MacOS
89154 MacOS;Windows
89156 MacOS
89175 Android;ChromeOS;iOS;iPadOS;Other Linux-based;...
89178 MacOS

OpSysProfessional use \

```

```

1      MacOS;Windows;Windows Subsystem for Linux (WSL)
2      MacOS;Other Linux-based
3      iOS;iPadOS;MacOS
6      MacOS
7      MacOS;Ubuntu;Windows
...
89150  Cygwin;Windows;Windows Subsystem for Linux (WSL)
89154      Windows
89156      MacOS
89175  Android;Other Linux-based;Windows;Windows Subs...
89178      MacOS;Ubuntu

      OfficeStackAsyncHaveWorkedWith \
1      Asana;Basecamp;GitHub Discussions;Jira;Linear;...
2      Markdown File;Stack Overflow for Teams
3      Jira
6      Jira
7      Markdown File;Notion
...
89150  Confluence;Doxygen;GitHub Discussions;Jira;Mir...
89154      Basecamp;GitHub Discussions
89156      Jira
89175      Jira
89178  Confluence;Jira;Markdown File;Stack Overflow f...

      OfficeStackAsyncWantToWorkWith \
1      GitHub Discussions;Linear;Notion;Trello
2      Markdown File
3      Jira
6      NaN
7      Markdown File;Notion
...
89150  Confluence;Doxygen;GitHub Discussions;Jira;Wikis
89154      GitHub Discussions
89156      Airtable
89175      Jira;Trello;YouTrack
89178      GitHub Discussions;Stack Overflow for Teams

      OfficeStackSyncHaveWorkedWith \
1      Cisco Webex Teams;Discord;Google Chat;Google M...
2      Microsoft Teams;Slack;Zoom
3      Discord;Google Meet;Microsoft Teams;Slack;Zoom
6      Slack
7      Microsoft Teams
...
89150      Discord;Microsoft Teams;Zoom
89154      Jitsi;Slack

```

89156	Google Meet;Slack;Zoom
89175	Cisco Webex Teams;Discord;Microsoft Teams;Zoom
89178	Microsoft Teams;Slack;Zoom

	OfficeStackSyncWantToWorkWith \
1	Discord;Signal;Slack;Zoom
2	Slack;Zoom
3	Discord;Google Meet;Slack;Zoom
6	NaN
7	Discord
...	...
89150	Discord;Microsoft Teams
89154	Jitsi;Slack
89156	Slack;Zoom
89175	Cisco Webex Teams;Discord;Microsoft Teams;Slack
89178	Slack

	AIsearchHaveWorkedWith	AIsearchWantToWorkWith \
1	ChatGPT	ChatGPT;Neeva AI
2	NaN	NaN
3	NaN	NaN
6	ChatGPT	NaN
7	Bing AI;ChatGPT;Google Bard AI	ChatGPT;Neeva AI;Perplexity AI
...
89150	NaN	NaN
89154	ChatGPT;Google Bard AI	ChatGPT;Google Bard AI
89156	ChatGPT	ChatGPT
89175	ChatGPT;Google Bard AI	ChatGPT;Google Bard AI
89178	NaN	NaN

	AIdevHaveWorkedWith	AIdevWantToWorkWith \
1	GitHub Copilot	GitHub Copilot
2	NaN	NaN
3	NaN	NaN
6	GitHub Copilot	NaN
7	GitHub Copilot	GitHub Copilot
...
89150	NaN	NaN
89154	GitHub Copilot	NaN
89156	GitHub Copilot	GitHub Copilot;Replit Ghostwriter
89175	NaN	NaN
89178	NaN	NaN

	NEWSOSites \
1	Stack Overflow;Stack Exchange
2	Stack Overflow;Stack Exchange;Stack Overflow f...
3	Stack Overflow;Stack Exchange

6 Stack Overflow
7 Stack Overflow;Stack Exchange;Collectives on S...
...
89150 Stack Overflow;Stack Exchange;Stack Overflow f...
89154 Stack Overflow;Stack Exchange
89156 Stack Overflow;Stack Exchange
89175 Stack Overflow;Stack Exchange
89178 Stack Overflow;Stack Exchange;Stack Overflow f...

	SOVisitFreq	SOAccount \
1	Daily or almost daily	Yes
2	A few times per month or weekly	Yes
3	A few times per week	Yes
6	A few times per month or weekly	Yes
7	Daily or almost daily	Yes
...
89150	A few times per month or weekly	Yes
89154	A few times per month or weekly	Yes
89156	Less than once per month or monthly	Yes
89175	Multiple times per day	Not sure/can't remember
89178	Daily or almost daily	Yes

	SOPartFreq	SOCComm \
1	A few times per month or weekly	Yes, definitely
2	Less than once per month or monthly	Neutral
3	Less than once per month or monthly	No, not really
6	Less than once per month or monthly	Neutral
7	A few times per month or weekly	Yes, somewhat
...
89150	Less than once per month or monthly	No, not at all
89154	Less than once per month or monthly	No, not at all
89156	Less than once per month or monthly	No, not really
89175	NaN	No, not really
89178	A few times per month or weekly	No, not really

	SOAI \
1	I don't think it's super necessary, but I thin...
2	NaN
3	I'm wearing of Stack Overflow using AI.
6	Neutral
7	NaN
...	...
89150	Generally negative. Doing a better job of find...
89154	I think AI could help improve the quality of p...
89156	Sounds generally helpful, yes. It could also d...
89175	I think there is value in incorporating AI to ...
89178	Improve question writing

	AISelect	AI Sent \
1	Yes	Indifferent
2	No, and I don't plan to	NaN
3	No, and I don't plan to	NaN
6	Yes	Unfavorable
7	Yes	Favorable
...
89150	No, and I don't plan to	NaN
89154	No, but I plan to soon	Favorable
89156	Yes	Favorable
89175	Yes	Favorable
89178	No, but I plan to soon	Favorable

	AI Acc	AI Ben \
1	Other (please explain)	Somewhat distrust
2	NaN	NaN
3	NaN	NaN
6	Improve accuracy in coding	Somewhat distrust
7	Increase productivity;Speed up learning	Somewhat distrust
...
89150	NaN	NaN
89154	NaN	Somewhat distrust
89156	Increase productivity;Improve collaboration	Somewhat distrust
89175	Increase productivity;Greater efficiency;Speed...	Somewhat trust
89178	NaN	Somewhat distrust

	AIToolInterested in Using \
1	Learning about a codebase;Writing code;Debuggi...
2	NaN
3	NaN
6	NaN
7	Project planning;Writing code;Documenting code...
...	...
89150	NaN
89154	NaN
89156	Learning about a codebase;Debugging and gettin...
89175	Learning about a codebase;Documenting code;Deb...
89178	NaN

	AIToolCurrently Using \
1	Writing code;Committing and reviewing code
2	NaN
3	NaN
6	Writing code;Debugging and getting help
7	Project planning;Writing code;Debugging and ge...
...	...

89150		NaN
89154		NaN
89156	Writing code;Documenting code	
89175	Writing code;Testing code	
89178		NaN

	AIToolNot interested in Using \	
1		NaN
2		NaN
3		NaN
6	Learning about a codebase;Project planning;Wri...	
7		NaN
...		...
89150		NaN
89154		NaN
89156	Project planning;Committing and reviewing code...	
89175	Project planning;Committing and reviewing code...	
89178		NaN

	AINextVery different	AINextNeither different nor similar \	
1	NaN		NaN
2	NaN		NaN
3	NaN		NaN
6	NaN		NaN
7	NaN		NaN
...
89150	NaN		NaN
89154	NaN		NaN
89156	NaN		NaN
89175	Writing code;Testing code		NaN
89178	NaN		NaN

	AINextSomewhat similar	AINextVery similar \	
1	NaN	NaN	
2	NaN	NaN	
3	NaN	NaN	
6	NaN	NaN	
7	NaN	NaN	
...
89150	NaN	NaN	
89154	NaN	NaN	
89156	NaN	NaN	
89175	NaN	NaN	
89178	NaN	NaN	

	AINextSomewhat different	TBranch		ICorPM	WorkExp \
1	NaN	Yes		People manager	10.0

2		NaN	Yes	Individual contributor	23.0
3		NaN	Yes	Individual contributor	7.0
6		NaN	Yes	Individual contributor	4.0
7		NaN	Yes		NaN 5.0
...
89150		NaN	Yes	Individual contributor	30.0
89154		NaN	Yes	Individual contributor	8.0
89156	Writing code;Documenting code		Yes	People manager	8.0
89175		NaN	Yes	Individual contributor	8.0
89178		NaN	Yes	Individual contributor	22.0

	Knowledge_1		Knowledge_2		Knowledge_3 \
1	Strongly agree		Agree		Strongly agree
2	Strongly agree	Neither agree nor disagree			Agree
3	Strongly agree		Strongly disagree		Strongly agree
6	Strongly agree		Agree	Neither agree nor disagree	
7	NaN		NaN		NaN
...
89150	Strongly agree		Agree	Neither agree nor disagree	
89154	Agree		Strongly disagree		Agree
89156	Strongly agree		Agree		Agree
89175	Agree	Neither agree nor disagree		Neither agree nor disagree	
89178	Strongly agree	Neither agree nor disagree			Disagree

	Knowledge_4		Knowledge_5		Knowledge_6 \
1	Agree		Agree		Agree
2	Agree		Agree		Agree
3	Strongly agree		Agree	Neither agree nor disagree	
6	Neither agree nor disagree		Agree		Agree
7	NaN		NaN		NaN
...
89150	Agree		Agree		Disagree
89154	Disagree		Agree		Agree
89156	Agree		Agree		Strongly agree
89175	Strongly agree	Strongly agree		Neither agree nor disagree	
89178	Neither agree nor disagree		Agree		Agree

	Knowledge_7		Knowledge_8 \
1	Agree		Strongly agree
2	Agree		Agree
3	Agree		Agree
6	Agree	Neither agree nor disagree	
7	NaN		NaN
...
89150	Disagree	Neither agree nor disagree	
89154	Strongly agree		Disagree
89156	Neither agree nor disagree	Neither agree nor disagree	

89175	Agree	Agree
89178	Strongly agree	Neither agree nor disagree

	Frequency_1	Frequency_2	Frequency_3 \
1	1-2 times a week	10+ times a week	Never
2	6-10 times a week	6-10 times a week	3-5 times a week
3	1-2 times a week	10+ times a week	1-2 times a week
6	1-2 times a week	3-5 times a week	1-2 times a week
7	NaN	NaN	NaN
...
89150	1-2 times a week	6-10 times a week	1-2 times a week
89154	Never	1-2 times a week	1-2 times a week
89156	1-2 times a week	10+ times a week	3-5 times a week
89175	1-2 times a week	3-5 times a week	Never
89178	1-2 times a week	1-2 times a week	1-2 times a week

	TimeSearching	TimeAnswering \
1	15-30 minutes a day	15-30 minutes a day
2	30-60 minutes a day	30-60 minutes a day
3	15-30 minutes a day	30-60 minutes a day
6	Less than 15 minutes a day	15-30 minutes a day
7	60-120 minutes a day	30-60 minutes a day
...
89150	Less than 15 minutes a day	Less than 15 minutes a day
89154	30-60 minutes a day	30-60 minutes a day
89156	30-60 minutes a day	Over 120 minutes a day
89175	60-120 minutes a day	30-60 minutes a day
89178	15-30 minutes a day	60-120 minutes a day

	ProfessionalTech \
1	DevOps function;Microservices;Automated testin...
2	DevOps function;Microservices;Automated testin...
3	Automated testing;Continuous integration (CI) ...
6	Microservices;Automated testing;Continuous int...
7	None of these
...	...
89150	DevOps function;Automated testing;Developer po...
89154	Developer portal or other central places to fi...
89156	Automated testing;Observability tools;Continuo...
89175	DevOps function;Continuous integration (CI) an...
89178	DevOps function;Microservices;Automated testin...

	Industry \
1	Information Services, IT, Software Development...
2	Information Services, IT, Software Development...
3	NaN
6	Information Services, IT, Software Development...

```

7                               Financial Services
...
89150 Information Services, IT, Software Development...
89154 Information Services, IT, Software Development...
89156 Information Services, IT, Software Development...
89175 Information Services, IT, Software Development...
89178 Insurance

      SurveyLength      SurveyEase      ConvertedCompYearly
1      Appropriate in length      Easy      285000.0
2      Appropriate in length      Easy      250000.0
3      Appropriate in length      Easy      156000.0
6      Appropriate in length      Easy      135000.0
7      Appropriate in length      NaN      80000.0
...
89150      Too short      Easy      NaN
89154 Appropriate in length      Easy      75000.0
89156 Appropriate in length      Neither easy nor difficult      195000.0
89175 Appropriate in length      Neither easy nor difficult      NaN
89178 Appropriate in length      Easy      NaN

```

[18647 rows x 84 columns]

```

[ ]: #find developers in India
india_developers = data[data['Country']=='India']
india_developers

```

```

[ ]:      ResponseId      Q120      MainBranch \
9      10 I agree      I am a developer by profession
66      67 I agree      I am a developer by profession
78      79 I agree      I am a developer by profession
82      83 I agree      I am a developer by profession
85      86 I agree      I am a developer by profession
...
89119      89120 I agree      I am a developer by profession
89121      89122 I agree      I am not primarily a developer, but I write co...
89164      89165 I agree      I am a developer by profession
89165      89166 I agree      I am a developer by profession
89167      89168 I agree      I am a developer by profession

```

```

      Age      Employment \
9      25-34 years old      Not employed, but looking for work
66      25-34 years old      Employed, full-time
78      18-24 years old      Employed, full-time
82      25-34 years old      Employed, full-time
85      25-34 years old      Employed, full-time
...

```

89119	18-24 years old	Student, full-time;Employed, part-time
89121	18-24 years old	Employed, full-time;Student, part-time
89164	18-24 years old	Employed, full-time
89165	25-34 years old	Employed, full-time
89167	18-24 years old	Employed, full-time

	RemoteWork	\
9		NaN
66	Hybrid (some remote, some in-person)	
78		Remote
82	Hybrid (some remote, some in-person)	
85		In-person
...		...
89119		Remote
89121	Hybrid (some remote, some in-person)	
89164		Remote
89165		In-person
89167		Remote

	CodingActivities	\
9		NaN
66	Hobby;Contribute to open-source projects	
78		Hobby
82		Hobby
85	Other (please specify):	
...		...
89119	Hobby;Professional development or self-paced l...	
89121	Contribute to open-source projects;Professiona...	
89164	Professional development or self-paced learnin...	
89165	Hobby;Contribute to open-source projects;Profe...	
89167	Hobby;Bootstrapping a business;Professional de...	

	EdLevel	\
9	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
66	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
78	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
82	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
85	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
...		...
89119	Secondary school (e.g. American high school, G...	
89121	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
89164	Bachelor's degree (B.A., B.S., B.Eng., etc.)	
89165	Master's degree (M.A., M.S., M.Eng., MBA, etc.)	
89167	Bachelor's degree (B.A., B.S., B.Eng., etc.)	

	LearnCode	\
9	Books / Physical media;Online Courses or Certi...	

66	Online Courses or Certification;School (i.e., ...
78	Online Courses or Certification;School (i.e., ...
82	Books / Physical media;Colleague;Friend or fam...
85	Books / Physical media;Online Courses or Certi...
...	...
89119	Online Courses or Certification;Other online r...
89121	Hackathons (virtual or in-person);Online Cours...
89164	Online Courses or Certification;Other online r...
89165	Online Courses or Certification;Other online r...
89167	Online Courses or Certification;Other online r...

	LearnCodeOnline \
9	Formal documentation provided by the owner of ...
66	NaN
78	NaN
82	Formal documentation provided by the owner of ...
85	Formal documentation provided by the owner of ...
...	...
89119	Formal documentation provided by the owner of ...
89121	Formal documentation provided by the owner of ...
89164	Formal documentation provided by the owner of ...
89165	Formal documentation provided by the owner of ...
89167	Formal documentation provided by the owner of ...

	LearnCodeCoursesCert	YearsCode	YearsCodePro	\
9	edX;Udemy;Pluralsight;Coursera;Udacity	6	NaN	
66	Codecademy;Udemy;Coursera	10	6	
78	Udemy	5	3	
82	Codecademy;Udemy;Coursera	10	5	
85	edX;Coursera	7	5	
...	
89119	NaN	3	NaN	
89121	Coursera	4	NaN	
89164	Other;Udemy	6	2	
89165	Udemy	6	3	
89167	edX;Udemy;Coursera	6	2	

	DevType \
9	Developer, full-stack
66	Engineer, data
78	Developer, full-stack
82	Developer, game or graphics
85	Developer, back-end
...	...
89119	Developer, mobile
89121	Data scientist or machine learning specialist
89164	Developer, back-end

89165	Developer, back-end
89167	Developer, mobile

	OrgSize	PurchaseInfluence \
9	NaN	NaN
66	100 to 499 employees	I have little or no influence
78	20 to 99 employees	I have little or no influence
82	10,000 or more employees	I have some influence
85	20 to 99 employees	I have a great deal of influence
...
89119	NaN	NaN
89121	NaN	NaN
89164	20 to 99 employees	I have little or no influence
89165	1,000 to 4,999 employees	I have little or no influence
89167	20 to 99 employees	I have little or no influence

	TechList	BuyNewTool	Country \
9	Investigate Start a free trial;Research companies that hav...		India
66	NaN Start a free trial;Ask developers I know/work ...		India
78	NaN Visit developer communities like Stack Overflow		India
82	Investigate Start a free trial;Ask developers I know/work ...		India
85	Investigate Visit developer communities like Stack Overflo...		India
...
89119	NaN	NaN	India
89121	Investigate Ask developers I know/work with;Visit develope...		India
89164	NaN Start a free trial;Ask developers I know/work ...		India
89165	NaN Start a free trial;Ask developers I know/work ...		India
89167	NaN Start a free trial;Ask developers I know/work ...		India

	Currency	CompTotal \
9	NaN	NaN
66	INR\tIndian rupee	3400000.0
78	INR\tIndian rupee	NaN
82	INR\tIndian rupee	NaN
85	INR\tIndian rupee	NaN
...
89119	NaN	NaN
89121	NaN	NaN
89164	INR\tIndian rupee	NaN
89165	INR\tIndian rupee	NaN
89167	INR\tIndian rupee	1300000.0

	LanguageHaveWorkedWith \
9	HTML/CSS;Java;JavaScript;Python;SQL;TypeScript
66	Java;Scala;SQL
78	JavaScript;TypeScript
82	C++


```

85          Assembly;C;C++;Java;JavaScript;SQL
...
89119          Dart;HTML/CSS;JavaScript;Python
89121          Python;SQL
89164          Go;HTML/CSS;Java;JavaScript;Python
89165          C;C#;C++;Java;JavaScript;TypeScript
89167          Dart;HTML/CSS;JavaScript;TypeScript

          LanguageWantToWorkWith \
9          HTML/CSS;JavaScript;TypeScript
66          Go;Java;Scala;SQL
78          JavaScript;TypeScript
82          C++
85          Assembly;C;C++;Java;JavaScript;SQL
...
89119 Dart;HTML/CSS;JavaScript;Python;Rust;Solidity;...
89121          Bash/Shell (all shells);Java;Python;SQL
89164          Go;Python;Rust
89165 Dart;Elixir;Go;JavaScript;Python;Rust;Solidity...
89167          Dart;Go;HTML/CSS;JavaScript;Swift;TypeScript

          DatabaseHaveWorkedWith \
9          Cloud Firestore;MongoDB;MySQL;PostgreSQL;SQLite
66          BigQuery;MariaDB;MongoDB;MySQL;PostgreSQL
78          MySQL
82          NaN
85          Elasticsearch;H2;MySQL;Oracle;PostgreSQL;Redis...
...
89119          Cloud Firestore;MongoDB
89121          MariaDB;MySQL;PostgreSQL;Snowflake
89164 Dynamodb;Elasticsearch;Firebase Realtime Datab...
89165          Cloud Firestore;MongoDB;PostgreSQL;Redis
89167          MongoDB;MySQL;PostgreSQL;SQLite

          DatabaseWantToWorkWith \
9          Cloud Firestore;Firebase Realtime Database;Mon...
66          BigQuery;Cassandra;Clickhouse;Dynamodb;MariaDB...
78          MongoDB
82          NaN
85          Elasticsearch;H2;MySQL;Oracle;PostgreSQL;Redis...
...
89119 Cloud Firestore;Firebase Realtime Database;Sup...
89121 BigQuery;Dynamodb;MongoDB;MySQL;PostgreSQL;Sno...
89164          MongoDB;PostgreSQL
89165 Dynamodb;Elasticsearch;MongoDB;MySQL;PostgreSQL...
89167          Cockroachdb;MongoDB;MySQL;PostgreSQL;SQLite

```

	PlatformHaveWorkedWith \
9	Amazon Web Services (AWS);Firebase;Google Clou...
66	Amazon Web Services (AWS);Google Cloud
78	Amazon Web Services (AWS)
82	VMware
85	Amazon Web Services (AWS);Firebase
...	...
89119	Amazon Web Services (AWS);Firebase;Vercel
89121	Amazon Web Services (AWS)
89164	Amazon Web Services (AWS);Google Cloud;Hetzner
89165	Amazon Web Services (AWS);Firebase;Heroku
89167	NaN

	PlatformWantToWorkWith \
9	Cloudflare;Firebase;Google Cloud;IBM Cloud Or ...
66	Amazon Web Services (AWS);Google Cloud
78	Amazon Web Services (AWS)
82	VMware
85	Amazon Web Services (AWS);Firebase
...	...
89119	Amazon Web Services (AWS);Firebase;Google Clou...
89121	Amazon Web Services (AWS);Google Cloud;Microso...
89164	Amazon Web Services (AWS)
89165	Amazon Web Services (AWS);Firebase
89167	NaN

	WebframeHaveWorkedWith \
9	Angular;Express;NestJS;React
66	NaN
78	Angular;Next.js;Node.js
82	NaN
85	Angular;Spring Boot
...	...
89119	Flask;Next.js;React
89121	Flask
89164	Django;Express;FastAPI;Flask;Node.js;React
89165	Angular;Django;Express;NestJS;Node.js;React
89167	Express;Node.js;React;Svelte

	WebframeWantToWorkWith \
9	Deno;Express;FastAPI;Fastify;NestJS;Qwik;React...
66	NaN
78	Next.js;Node.js;React
82	NaN
85	Angular;Spring Boot
...	...
89119	Next.js;Remix;Svelte;Vue.js

```

89121                                FastAPI;Flask
89164                                Django;FastAPI;Flask
89165    Deno;Express;Fastify;NestJS;Next.js;Node.js;Re...
89167        Deno;Express;FastAPI;Next.js;Node.js;Svelte

                                MiscTechHaveWorkedWith \
9                                    NaN
66                                Apache Kafka;Apache Spark;Hadoop
78                                React Native
82    Opencv;OpenGL;Pandas;Scikit-Learn;TensorFlow
85                                Spring Framework
...
89119    Flutter;NumPy;Pandas;Scikit-Learn
89121    NumPy;Pandas;Scikit-Learn;TensorFlow
89164    Flutter;NumPy;Opencv;OpenGL;Pandas;RabbitMQ
89165                                NaN
89167    Flutter;NumPy;Pandas;Scikit-Learn

                                MiscTechWantToWorkWith \
9                                    NaN
66                                Apache Kafka;Apache Spark;Hadoop
78                                React Native
82    NumPy;Opencv;OpenGL;Pandas;Qt;Scikit-Learn;Ten...
85                                Spring Framework
...
89119    Flutter;NumPy;Opencv;OpenGL;Pandas;Scikit-Learn
89121    Opencv;Pandas;Scikit-Learn;TensorFlow;Torch/Py...
89164                                NumPy;Opencv;Pandas
89165                                NaN
89167    Capacitor;Flutter;JAX;NumPy;Pandas;React Nativ...

                                ToolsTechHaveWorkedWith \
9                                    Docker;npm;Vite;Webpack;Yarn
66    Docker;Gradle;Homebrew;Kubernetes;Maven (build...
78                                    NaN
82                                GNU GCC;Make;Pip
85                                Ant
...
89119    npm;Pacman;Pip;Vite;Yarn
89121                                NaN
89164    Docker;Kubernetes;npm;Pip;Yarn
89165    Docker;Homebrew;npm;Pip;Unity 3D;Webpack;Yarn
89167    Homebrew;Vite

                                ToolsTechWantToWorkWith \
9                                    Docker;npm;Podman;Vite;Webpack;Yarn
66    Ansible;Chef;Composer;Docker;Gradle;Homebrew;K...

```

```

78                                     NaN
82                                GNU GCC;Make;npm;Pip
85                                Ant
...
89119 Docker;Kubernetes;npm;Pacman;Pip;Unreal Engine...
89121                                     NaN
89164                Ansible;Docker;Kubernetes;Pip;Terraform
89165                Bun;Docker;Homebrew;npm;Yarn
89167                Docker;Homebrew;Podman;Vite

                                NEWCollabToolsHaveWorkedWith \
9                                Visual Studio Code
66    Atom;IntelliJ IDEA;Jupyter Notebook/JupyterLab...
78                                Visual Studio Code
82    Eclipse;IntelliJ IDEA;Notepad++;PyCharm;Sublim...
85                                IntelliJ IDEA
...
89119 Android Studio;IntelliJ IDEA;IPython;Jupyter N...
89121    Jupyter Notebook/JupyterLab;Visual Studio Code
89164 Android Studio;Atom;Fleet;Goland;IntelliJ IDEA...
89165 Android Studio;Atom;Code::Blocks;Eclipse;Intel...
89167 Android Studio;Jupyter Notebook/JupyterLab;Sub...

                                NEWCollabToolsWantToWorkWith \
9                                Visual Studio Code
66    Atom;IntelliJ IDEA;Jupyter Notebook/JupyterLab...
78                                Visual Studio Code
82    Eclipse;IntelliJ IDEA;Notepad++;PyCharm;Sublim...
85                                IntelliJ IDEA
...
89119 Android Studio;IPython;Jupyter Notebook/Jupyte...
89121    Jupyter Notebook/JupyterLab;Visual Studio Code
89164                PyCharm;Visual Studio Code
89165                Nano;Vim;Visual Studio Code
89167 Jupyter Notebook/JupyterLab;Sublime Text;Visua...

                                OpSysPersonal use \
9    Fedora;Other Linux-based;Ubuntu;Windows;Window...
66    Android;Debian;iOS;iPadOS;MacOS;Ubuntu;Windows
78                                MacOS
82                                Red Hat
85    ChromeOS;Fedora;Other Linux-based;Ubuntu
...
89119                                Android;Ubuntu
89121                Arch;Debian;Other Linux-based;Windows
89164    Ubuntu;Windows;Windows Subsystem for Linux (WSL)
89165                Android;Debian;MacOS;Ubuntu;Windows

```

89167		Android;MacOS
		OpSysProfessional use \
9	Fedora;Other Linux-based;Red Hat;Windows;Windo...	
66		MacOS
78		MacOS
82		Red Hat
85	ChromeOS;Fedora;Other Linux-based;Ubuntu	
...		...
89119		Android;Ubuntu
89121	Arch;Debian;Other Linux-based;Ubuntu	
89164		MacOS;Ubuntu
89165	Android;Arch;ChromeOS;Fedora;MacOS;Other Linux...	
89167		Android;MacOS
		OfficeStackAsyncHaveWorkedWith \
9	Asana;Markdown File;Miro;Notion;Redmine;Trello	
66		Jira;Markdown File
78		Jira
82	Confluence;Doxygen;Jira;Microsoft Planner	
85		Asana;Jira
...		...
89119	GitHub Discussions;Notion	
89121		NaN
89164		Jira
89165	Monday.com;Trello	
89167		NaN
		OfficeStackAsyncWantToWorkWith \
9	Asana;Markdown File;Miro;Notion;Redmine;Trello	
66		Jira;Markdown File
78		Jira
82	Confluence;Doxygen;Jira;Microsoft Planner	
85		Asana;Jira
...		...
89119	GitHub Discussions;Jira;Notion	
89121		NaN
89164		Jira
89165	GitHub Discussions;Monday.com;Stack Overflow f...	
89167		NaN
		OfficeStackSyncHaveWorkedWith \
9	Discord;Google Chat;Google Meet;Slack;Telegram	
66	Cisco Webex Teams;Discord;Google Chat;Google M...	
78		Slack
82	Cisco Webex Teams;Google Meet;Microsoft Teams;...	
85		Skype;Slack;Telegram;Whatsapp

```

...
89119 Discord;Google Meet;Microsoft Teams;Telegram;W...
89121   Discord;Google Meet;Microsoft Teams;Skype;Slack
89164   Google Meet;Slack;Zoom
89165 Discord;Google Meet;Microsoft Teams;Skype;Slac...
89167   Google Meet;Slack

OfficeStackSyncWantToWorkWith \
9       Discord;Google Chat;Google Meet;Telegram
66      Cisco Webex Teams;Discord;Google Chat;Google M...
78      Slack
82      Cisco Webex Teams;Google Meet;Microsoft Teams;...
85      Skype;Telegram;Whatsapp
...
89119   Discord;Google Meet;Slack;Telegram;Whatsapp;Zoom
89121   Discord;Slack;Telegram
89164   Google Meet;Slack;Zoom
89165   Discord;Google Meet;Microsoft Teams;Skype;Slac...
89167   Google Meet;Slack

AISearchHaveWorkedWith \
9       Bing AI;ChatGPT
66      NaN
78      ChatGPT
82      ChatGPT
85      NaN
...
89119   ChatGPT;Google Bard AI;Perplexity AI;WolframAl...
89121   You.com
89164   ChatGPT
89165   Bing AI;ChatGPT
89167   ChatGPT

AISearchWantToWorkWith \
9       Bing AI;ChatGPT;Google Bard AI
66      NaN
78      ChatGPT
82      ChatGPT
85      NaN
...
89119   ChatGPT;Google Bard AI;Perplexity AI;You.com
89121   ChatGPT;Google Bard AI;You.com
89164   ChatGPT
89165   ChatGPT;Google Bard AI
89167   Bing AI;ChatGPT

```

AIDevHaveWorkedWith \

9	AWS CodeWhisperer;GitHub Copilot;Tabnine
66	NaN
78	NaN
82	GitHub Copilot
85	NaN
...	...
89119	AWS CodeWhisperer;GitHub Copilot
89121	NaN
89164	GitHub Copilot
89165	NaN
89167	NaN

	AIDevWantToWorkWith \
9	AWS CodeWhisperer;GitHub Copilot
66	NaN
78	NaN
82	GitHub Copilot
85	NaN
...	...
89119	AWS CodeWhisperer;GitHub Copilot
89121	NaN
89164	NaN
89165	NaN
89167	NaN

	NEWSOSites \
9	Stack Overflow;Stack Exchange
66	Stack Overflow;Stack Exchange;Collectives on S...
78	Stack Overflow
82	Stack Overflow;Stack Exchange
85	Stack Overflow;Stack Exchange
...	...
89119	Stack Overflow;Stack Exchange
89121	Stack Overflow;Stack Exchange
89164	Stack Overflow;Stack Exchange
89165	Stack Overflow;Stack Exchange;Stack Overflow f...
89167	Stack Overflow;Stack Exchange

	SOVisitFreq	SOAccount \
9	A few times per week	Yes
66	Multiple times per day	Yes
78	A few times per month or weekly	Yes
82	Multiple times per day	Yes
85	Multiple times per day	Yes
...
89119	Multiple times per day	Yes
89121	A few times per week	Yes

89164	A few times per week	Yes
89165	Multiple times per day	Yes
89167	Daily or almost daily	Not sure/can't remember

	SOPartFreq	SComm \
9	Less than once per month or monthly	Neutral
66	Daily or almost daily	Yes, definitely
78	Less than once per month or monthly	Yes, definitely
82	A few times per month or weekly	Neutral
85	Less than once per month or monthly	Yes, definitely
...
89119	Less than once per month or monthly	Yes, definitely
89121	I have never participated in Q&A on Stack Over...	Yes, somewhat
89164	I have never participated in Q&A on Stack Over...	Yes, somewhat
89165	A few times per month or weekly	Yes, definitely
89167	NaN	No, not really

	SOAI \
9	AI could assist solving communication issues p...
66	NaN
78	NaN
82	providing exact copy paste code
85	NaN
...	...
89119	NaN
89121	NaN
89164	NaN
89165	I think StackOverflow should also use AI to ge...
89167	It's should,it will make stackoverflow better ...

	AISelect	AISelect \
9	Yes	Indifferent
66	No, and I don't plan to	NaN
78	Yes	Very favorable
82	No, but I plan to soon	Very favorable
85	No, but I plan to soon	Unsure
...
89119	Yes	Favorable
89121	No, but I plan to soon	Indifferent
89164	Yes	Favorable
89165	Yes	Favorable
89167	Yes	Very favorable

	AIAcc \
9	Other (please explain);Increase productivity;G...
66	NaN
78	Increase productivity;Greater efficiency;Speed...

82		NaN
85		NaN
...		...
89119	Increase productivity;Greater efficiency	
89121		NaN
89164	Increase productivity;Greater efficiency;Impro...	
89165	Increase productivity;Greater efficiency;Speed...	
89167	Increase productivity;Greater efficiency;Speed...	

		AI Ben \
9	Neither trust nor distrust	
66		NaN
78	Somewhat trust	
82	Somewhat trust	
85	Somewhat trust	
...		...
89119	Somewhat trust	
89121	Neither trust nor distrust	
89164	Somewhat trust	
89165	Somewhat trust	
89167	Somewhat trust	

		AIToolInterested in Using \
9	Learning about a codebase;Documenting code;Com...	
66		NaN
78	Testing code;Committing and reviewing code;Dep...	
82		NaN
85		NaN
...		...
89119	Learning about a codebase;Project planning;Tes...	
89121		NaN
89164	Committing and reviewing code	
89165	Learning about a codebase;Project planning;Wri...	
89167	Writing code;Debugging and getting help;Commit...	

		AIToolCurrently Using \
9	Writing code;Debugging and getting help	
66		NaN
78	Writing code	
82		NaN
85		NaN
...		...
89119	Writing code;Debugging and getting help	
89121		NaN
89164		NaN
89165	Learning about a codebase;Project planning;Wri...	
89167	Project planning;Writing code;Debugging and ge...	

	AI Tool Not interested in Using \
9	Project planning; Testing code; Deployment and m...
66	NaN
78	NaN
82	NaN
85	NaN
...	...
89119	NaN
89121	NaN
89164	NaN
89165	NaN
89167	NaN

	AI Next Very different \
9	NaN
66	NaN
78	NaN
82	NaN
85	NaN
...	...
89119	NaN
89121	NaN
89164	NaN
89165	Writing code; Debugging and getting help
89167	NaN

	AI Next Neither different nor similar	AI Next Somewhat similar \
9	NaN	NaN
66	NaN	NaN
78	NaN	NaN
82	NaN	NaN
85	NaN	NaN
...
89119	Debugging and getting help	NaN
89121	NaN	NaN
89164	NaN	NaN
89165	NaN	NaN
89167	NaN	NaN

	AI Next Very similar	AI Next Somewhat different \
9	NaN	NaN
66	NaN	NaN
78	NaN	NaN
82	NaN	NaN
85	NaN	NaN
...

89119	NaN	Writing code;Debugging and getting help
89121	NaN	NaN
89164	NaN	NaN
89165	NaN	Learning about a codebase;Project planning;Wri...
89167	NaN	Project planning;Writing code;Debugging and ge...

	TBranch		ICorPM	WorkExp	Knowledge_1	\
9	NaN		NaN	NaN	NaN	
66	No		NaN	NaN	NaN	
78	No		NaN	NaN	NaN	
82	Yes	Individual contributor		5.0	Agree	
85	Yes	Individual contributor		6.0	Agree	
...	
89119	NaN		NaN	NaN	NaN	
89121	No		NaN	NaN	NaN	
89164	Yes	Individual contributor		2.0	Agree	
89165	Yes	Individual contributor		3.0	Agree	
89167	Yes	Individual contributor		2.0	Agree	

		Knowledge_2		Knowledge_3	Knowledge_4	\
9		NaN		NaN	NaN	
66		NaN		NaN	NaN	
78		NaN		NaN	NaN	
82		Agree	Neither agree nor disagree		Disagree	
85		Strongly agree		Strongly agree	Strongly agree	
...		
89119		NaN		NaN	NaN	
89121		NaN		NaN	NaN	
89164		Agree		Agree	Agree	
89165	Neither agree nor disagree			Strongly disagree	Agree	
89167	Neither agree nor disagree		Neither agree nor disagree		Agree	

		Knowledge_5		Knowledge_6	Knowledge_7	\
9		NaN		NaN	NaN	
66		NaN		NaN	NaN	
78		NaN		NaN	NaN	
82		Agree		Agree	Strongly agree	
85	Strongly agree			Disagree	Agree	
...		
89119		NaN		NaN	NaN	
89121		NaN		NaN	NaN	
89164		Agree		Agree	Agree	
89165	Strongly agree	Neither agree nor disagree		Strongly agree	Strongly agree	
89167		Agree		Agree	Strongly agree	

		Knowledge_8		Frequency_1	Frequency_2	\
9		NaN		NaN	NaN	

66		NaN	NaN	NaN
78		NaN	NaN	NaN
82	Neither agree nor disagree	1-2 times a week	1-2 times a week	
85	Disagree	10+ times a week	10+ times a week	
...	
89119		NaN	NaN	NaN
89121		NaN	NaN	NaN
89164	Agree	Never	1-2 times a week	
89165	Strongly agree	1-2 times a week	3-5 times a week	
89167	Agree	1-2 times a week	1-2 times a week	

	Frequency_3	TimeSearching \
9	NaN	NaN
66	NaN	NaN
78	NaN	NaN
82	1-2 times a week	60-120 minutes a day
85	10+ times a week	30-60 minutes a day
...
89119	NaN	NaN
89121	NaN	NaN
89164	Never	Less than 15 minutes a day
89165	1-2 times a week	30-60 minutes a day
89167	NaN	Over 120 minutes a day

	TimeAnswering \
9	NaN
66	NaN
78	NaN
82	30-60 minutes a day
85	60-120 minutes a day
...	...
89119	NaN
89121	NaN
89164	Less than 15 minutes a day
89165	30-60 minutes a day
89167	30-60 minutes a day

	ProfessionalTech \
9	NaN
66	NaN
78	NaN
82	DevOps function;Developer portal or other cent...
85	Automated testing;Continuous integration (CI) ...
...	...
89119	NaN
89121	NaN
89164	DevOps function;Microservices;Automated testin...

```

89165  Observability tools;Innersource initiative;Dev...
89167                                     Automated testing

```

```

                                     Industry \
9                                     NaN
66                                    NaN
78                                    NaN
82    Information Services, IT, Software Development...
85                                Financial Services
...
89119                                NaN
89121                                NaN
89164                                Financial Services
89165  Information Services, IT, Software Development...
89167                                Retail and Consumer Services

```

	SurveyLength	SurveyEase	ConvertedCompYearly
9	Appropriate in length	Neither easy nor difficult	NaN
66	Too long	Easy	41197.0
78	Appropriate in length	Easy	NaN
82	Appropriate in length	Neither easy nor difficult	NaN
85	Too long	Neither easy nor difficult	NaN
...
89119	Too long	Neither easy nor difficult	NaN
89121	Appropriate in length	Easy	NaN
89164	Appropriate in length	Neither easy nor difficult	NaN
89165	Appropriate in length	Neither easy nor difficult	NaN
89167	Appropriate in length	Neither easy nor difficult	15752.0

[5625 rows x 84 columns]

```

[ ]: #Age Breakdown for UDA developers
usa_developers['Age'].value_counts()

```

```

[ ]: Age
25-34 years old      6283
35-44 years old      4855
18-24 years old      2468
45-54 years old      2277
55-64 years old      1238
Under 18 years old    867
65 years or older     529
Prefer not to say     130
Name: count, dtype: int64

```

```

[ ]: #Age Breakdown
india_developers['Age'].value_counts()

```

```
[ ]: Age
18-24 years old      2296
25-34 years old      2289
35-44 years old       512
Under 18 years old    378
45-54 years old      107
55-64 years old       20
Prefer not to say     19
65 years or older     4
Name: count, dtype: int64
```

```
[ ]: #People interested in coding as Hobby
data[(data['Country']=='India') & (data['CodingActivities']=='Hobby') &
      (data['Employment']=='Employed, full-time')]
```

```
[ ]:      ResponseId      Q120      MainBranch      Age \
78          79 I agree I am a developer by profession 18-24 years old
82          83 I agree I am a developer by profession 25-34 years old
172         173 I agree I am a developer by profession 18-24 years old
397         398 I agree I am a developer by profession 18-24 years old
404         405 I agree I am a developer by profession 25-34 years old
...          ...      ...
87460      87461 I agree I am a developer by profession 25-34 years old
87486      87487 I agree I am a developer by profession 18-24 years old
87526      87527 I agree I am a developer by profession 35-44 years old
87724      87725 I agree I am a developer by profession 18-24 years old
88037      88038 I agree I am a developer by profession 18-24 years old

      Employment      RemoteWork \
78      Employed, full-time      Remote
82      Employed, full-time Hybrid (some remote, some in-person)
172      Employed, full-time      In-person
397      Employed, full-time Hybrid (some remote, some in-person)
404      Employed, full-time      In-person
...          ...
87460      Employed, full-time Hybrid (some remote, some in-person)
87486      Employed, full-time      In-person
87526      Employed, full-time Hybrid (some remote, some in-person)
87724      Employed, full-time      In-person
88037      Employed, full-time Hybrid (some remote, some in-person)

      CodingActivities      EdLevel \
78          Hobby Bachelor's degree (B.A., B.S., B.Eng., etc.)
82          Hobby Bachelor's degree (B.A., B.S., B.Eng., etc.)
172         Hobby Bachelor's degree (B.A., B.S., B.Eng., etc.)
397         Hobby Bachelor's degree (B.A., B.S., B.Eng., etc.)
404         Hobby Bachelor's degree (B.A., B.S., B.Eng., etc.)
```

...
87460	Hobby	Bachelor's degree (B.A., B.S., B.Eng., etc.)
87486	Hobby	Bachelor's degree (B.A., B.S., B.Eng., etc.)
87526	Hobby	Bachelor's degree (B.A., B.S., B.Eng., etc.)
87724	Hobby	Bachelor's degree (B.A., B.S., B.Eng., etc.)
88037	Hobby	Bachelor's degree (B.A., B.S., B.Eng., etc.)

		LearnCode \
78	Online Courses or Certification;School (i.e., ...	
82	Books / Physical media;Colleague;Friend or fam...	
172	Books / Physical media;Online Courses or Certi...	
397	Other online resources (e.g., videos, blogs, f...	
404	Online Courses or Certification;School (i.e., ...	
...	...	
87460	Colleague;Hackathons (virtual or in-person);On...	
87486	Books / Physical media;Other (please specify):	
87526	On the job training;Other online resources (e...	
87724	On the job training;Other online resources (e...	
88037	Books / Physical media;Colleague;Friend or fam...	

		LearnCodeOnline \
78		NaN
82	Formal documentation provided by the owner of ...	
172	Formal documentation provided by the owner of ...	
397	Formal documentation provided by the owner of ...	
404		NaN
...	...	
87460	Formal documentation provided by the owner of ...	
87486		NaN
87526	Formal documentation provided by the owner of ...	
87724	Recorded coding sessions;How-to videos;Video-b...	
88037	Formal documentation provided by the owner of ...	

	LearnCodeCoursesCert	YearsCode	YearsCodePro	\
78	Udemy	5	3	
82	Codecademy;Udemy;Coursera	10	5	
172	Coursera	9	3	
397	NaN	6	1	
404	Udemy;Coursera	5	2	
...	
87460	edX;Udemy;Coursera	2	Less than 1 year	
87486	NaN	5	Less than 1 year	
87526	NaN	17	16	
87724	NaN	2	5	
88037	Udemy;Coursera;Udacity	7	1	

DevType	OrgSize \
---------	-----------

78	Developer, full-stack	20 to 99 employees
82	Developer, game or graphics	10,000 or more employees
172	Developer, back-end	10 to 19 employees
397	Developer, embedded applications or devices	10,000 or more employees
404	Blockchain	500 to 999 employees
...
87460	Developer, full-stack	1,000 to 4,999 employees
87486	Developer, full-stack	10,000 or more employees
87526	Developer, full-stack	10,000 or more employees
87724	Developer, full-stack	1,000 to 4,999 employees
88037	Developer, full-stack	500 to 999 employees

	PurchaseInfluence	TechList \
78	I have little or no influence	NaN
82	I have some influence	Investigate
172	I have some influence	Investigate
397	I have little or no influence	NaN
404	I have some influence	Investigate
...
87460	I have little or no influence	NaN
87486	I have little or no influence	NaN
87526	I have little or no influence	NaN
87724	I have some influence	Investigate
88037	I have little or no influence	NaN

	BuyNewTool	Country \
78	Visit developer communities like Stack Overflow	India
82	Start a free trial;Ask developers I know/work ...	India
172	Visit developer communities like Stack Overflo...	India
397	Start a free trial;Visit developer communities...	India
404	Ask developers I know/work with	India
...
87460	Start a free trial;Ask developers I know/work ...	India
87486	Visit developer communities like Stack Overflo...	India
87526	Start a free trial;Ask developers I know/work ...	India
87724	Start a free trial;Ask developers I know/work ...	India
88037	Ask developers I know/work with;Visit develope...	India

	Currency	CompTotal \
78	INR\tIndian rupee	NaN
82	INR\tIndian rupee	NaN
172	INR\tIndian rupee	NaN
397	INR\tIndian rupee	1050000.0
404	INR\tIndian rupee	400000.0
...
87460	INR\tIndian rupee	638000.0
87486	INR\tIndian rupee	NaN

87526	INR\tIndian rupee	NaN
87724	INR\tIndian rupee	NaN
88037	INR\tIndian rupee	1700000.0

	LanguageHaveWorkedWith	\
78	JavaScript;TypeScript	
82	C++	
172	Bash/Shell (all shells);Java;SQL	
397	C;C++;Go;HTML/CSS;Python;Rust;SQL;TypeScript	
404	C#;C++	
...	...	
87460	Java;JavaScript;SQL;TypeScript	
87486	Bash/Shell (all shells);C;C++;HTML/CSS;Java;Ja...	
87526	C#;Dart;HTML/CSS;JavaScript;PowerShell;Python;...	
87724	Java;JavaScript;Python	
88037	C#;HTML/CSS;JavaScript;PowerShell;SQL;TypeScript	

	LanguageWantToWorkWith	\
78	JavaScript;TypeScript	
82	C++	
172	Bash/Shell (all shells);Java;JavaScript;Python...	
397	Go;Rust;SQL;TypeScript	
404	Rust	
...	...	
87460	Java;JavaScript;Python;SQL;TypeScript	
87486	Bash/Shell (all shells);C;C++;Erlang;Go;Groovy...	
87526	C#;Dart;HTML/CSS;JavaScript;Python;SQL;TypeScript	
87724	JavaScript;Python	
88037	C#;Dart;Go;Kotlin;PowerShell;SQL	

	DatabaseHaveWorkedWith	\
78	MySQL	
82	NaN	
172	MySQL;PostgreSQL	
397	Cockroachdb;PostgreSQL;Redis;SQLite	
404	MongoDB;MySQL;PostgreSQL;SQLite	
...	...	
87460	H2;MariaDB;MySQL	
87486	MariaDB;MongoDB;MySQL	
87526	Cosmos DB;Microsoft SQL Server	
87724	Cloud Firestore;Firebase Realtime Database;Mar...	
88037	Microsoft SQL Server	

	DatabaseWantToWorkWith	\
78	MongoDB	
82	NaN	
172	MongoDB;PostgreSQL	

397	Cockroachdb;MongoDB;PostgreSQL;Redis	
404		NaN
...		...
87460	MongoDB;MySQL;PostgreSQL	
87486	Cassandra;MariaDB;MongoDB;MySQL;PostgreSQL;Red...	
87526	Microsoft SQL Server	
87724	Microsoft SQL Server;MongoDB;MySQL	
88037	Dynamodb;Elasticsearch;Microsoft SQL Server;Mo...	
	PlatformHaveWorkedWith	\
78	Amazon Web Services (AWS)	
82		VMware
172		NaN
397	Amazon Web Services (AWS);Cloudflare;Google Cl...	
404	Amazon Web Services (AWS);Cloudflare	
...		...
87460	Microsoft Azure	
87486	Amazon Web Services (AWS);Cloudflare;Firebase;...	
87526	Microsoft Azure	
87724	Amazon Web Services (AWS);Firebase	
88037		NaN
	PlatformWantToWorkWith	\
78	Amazon Web Services (AWS)	
82		VMware
172		NaN
397	Amazon Web Services (AWS);Cloudflare;Vercel	
404		NaN
...		...
87460	Amazon Web Services (AWS);Microsoft Azure	
87486	Amazon Web Services (AWS);Cloudflare;Digital O...	
87526	Microsoft Azure	
87724	Amazon Web Services (AWS);Firebase	
88037		NaN
	WebframeHaveWorkedWith	\
78	Angular;Next.js;Node.js	
82		NaN
172	Spring Boot	
397	Express;Svelte	
404	Django;Flask	
...		...
87460	AngularJS;Django	
87486	Express;jQuery;Next.js;Node.js;React;Spring Bo...	
87526	ASP.NET CORE;Node.js;React	
87724	AngularJS;Django;Express;Flask;Next.js;Node.js...	
88037	Angular;AngularJS;ASP.NET;ASP.NET CORE;jQuery;...	

```

WebframeWantToWorkWith \
78      Next.js;Node.js;React
82      NaN
172     Express;Next.js;Node.js;React;Spring Boot
397     Svelte
404     NaN
...
87460   AngularJS;Node.js;React
87486   Angular;AngularJS;Django;Express;jQuery;Next.js...
87526   ASP.NET CORE;Node.js;React
87724   AngularJS;Express;Next.js;Node.js;React;Spring...
88037   Express;Next.js;React;Svelte;Vue.js

```

```

MiscTechHaveWorkedWith \
78      React Native
82      Opencv;OpenGL;Pandas;Scikit-Learn;TensorFlow
172     Apache Kafka;Spring Framework
397     Tauri
404     .NET Framework (1.0 - 4.8)
...
87460   .NET (5+) ;Spring Framework
87486   GTK;Opencv;OpenGL;Spring Framework
87526   .NET (5+) ;Flutter
87724   NaN
88037   .NET Framework (1.0 - 4.8)

```

```

MiscTechWantToWorkWith \
78      React Native
82      NumPy;Opencv;OpenGL;Pandas;Qt;Scikit-Learn;Ten...
172     Apache Kafka;RabbitMQ;Spring Framework
397     Tauri
404     NaN
...
87460   Spring Framework
87486   GTK;Opencv;OpenGL;Spring Framework
87526   .NET (5+) ;Flutter
87724   NaN
88037   .NET (5+) ;Flutter;React Native;TensorFlow

```

```

ToolsTechHaveWorkedWith \
78      NaN
82      GNU GCC;Make;Pip
172     Docker;Maven (build tool)
397     Cargo;CMake;Kubernetes;Make;Vite
404     Ant
...

```

```

87460          Docker;Maven (build tool)
87486 CMake;GNU GCC;LLVM's Clang;Make;Maven (build t...
87526      MSBuild;npm;NuGet;Pip;Visual Studio Solution
87724          Maven (build tool);npm;Webpack
88037      Ant;MSBuild;npm;NuGet;Visual Studio Solution

          ToolsTechWantToWorkWith \
78          NaN
82          GNU GCC;Make;npm;Pip
172  Ansible;Docker;Kubernetes;Maven (build tool);n...
397          Cargo;Kubernetes;Terraform;Vite
404          NaN
...          ...
87460          Docker;Kubernetes;Maven (build tool)
87486 CMake;Docker;GNU GCC;Godot;Google Test;Gradle;...
87526      MSBuild;Visual Studio Solution
87724          Maven (build tool);npm;Webpack
88037      MSBuild;Visual Studio Solution

          NEWCollabToolsHaveWorkedWith \
78          Visual Studio Code
82  Eclipse;IntelliJ IDEA;Notepad++;PyCharm;Sublim...
172          IntelliJ IDEA;Vim
397          Visual Studio Code
404          Emacs;Notepad++
...          ...
87460  IntelliJ IDEA;Visual Studio;Visual Studio Code
87486  Android Studio;Atom;Code::Blocks;Eclipse;Intel...
87526  Android Studio;Notepad++;Visual Studio;Visual ...
87724  Android Studio;IntelliJ IDEA;IPython;Notepad++...
88037  Fleet;IntelliJ IDEA;Notepad++;PyCharm;Visual S...

          NEWCollabToolsWantToWorkWith \
78          Visual Studio Code
82  Eclipse;IntelliJ IDEA;Notepad++;PyCharm;Sublim...
172          IntelliJ IDEA;Vim
397          Visual Studio Code
404          NaN
...          ...
87460          IntelliJ IDEA;Visual Studio Code
87486  Android Studio;Code::Blocks;Eclipse;Emacs;Inte...
87526          Visual Studio;Visual Studio Code
87724  Android Studio;IntelliJ IDEA;IPython;Notepad++
88037  Emacs;Neovim;Notepad++;Visual Studio;Visual St...

          OpSysPersonal use \
78          MacOS

```

82		Red Hat	
172		Ubuntu	
397	Debian;Ubuntu;Windows;Windows Subsystem for Li...		
404		ChromeOS	
...		...	
87460		Ubuntu	
87486	Android;Arch;Other Linux-based;Windows;Other (...)		
87526		Android;Debian;Windows	
87724		Android;ChromeOS;Ubuntu;Windows	
88037		Windows	
		OpSysProfessional use	\
78		MacOS	
82		Red Hat	
172		Ubuntu	
397	Debian;Ubuntu;Windows;Windows Subsystem for Li...		
404		NaN	
...		...	
87460		Windows	
87486	Arch;Other Linux-based;Windows;Other (Please S...		
87526		Windows	
87724		Android;Ubuntu;Windows	
88037	Fedora;MacOS;Windows;Windows Subsystem for Lin...		
		OfficeStackAsyncHaveWorkedWith	\
78		Jira	
82	Confluence;Doxygen;Jira;Microsoft Planner		
172		NaN	
397		Azure Devops;Markdown File	
404		Notion	
...		...	
87460		Azure Devops	
87486	Azure Devops;Confluence;Doxygen;GitHub Discuss...		
87526		Azure Devops	
87724		Confluence;Jira	
88037		Confluence;Jira	
		OfficeStackAsyncWantToWorkWith	\
78		Jira	
82	Confluence;Doxygen;Jira;Microsoft Planner		
172		NaN	
397		Markdown File	
404		NaN	
...		...	
87460		Azure Devops;GitHub Discussions	
87486	Confluence;Doxygen;GitHub Discussions;Jira;Mir...		
87526		NaN	

87724	Jira
88037	Jira;Notion

	OfficeStackSyncHaveWorkedWith \
78	Slack
82	Cisco Webex Teams;Google Meet;Microsoft Teams;...
172	Discord;Slack;Telegram;Whatsapp
397	Discord;Microsoft Teams;Whatsapp
404	Cisco Webex Teams
...	...
87460	Microsoft Teams
87486	Cisco Webex Teams;Discord;Google Chat;Microsof...
87526	Cisco Webex Teams;Google Meet;Microsoft Teams;...
87724	Microsoft Teams
88037	Microsoft Teams

	OfficeStackSyncWantToWorkWith \
78	Slack
82	Cisco Webex Teams;Google Meet;Microsoft Teams;...
172	Discord;Slack;Telegram;Whatsapp
397	Discord;Signal;Whatsapp
404	NaN
...	...
87460	Microsoft Teams
87486	Matrix;Microsoft Teams;Skype;Telegram;Whatsapp...
87526	Google Meet;Microsoft Teams;Whatsapp
87724	Microsoft Teams
88037	Microsoft Teams

	AISeachHaveWorkedWith	AISeachWantToWorkWith	AIDevHaveWorkedWith \
78	ChatGPT	ChatGPT	NaN
82	ChatGPT	ChatGPT	GitHub Copilot
172	ChatGPT	ChatGPT	NaN
397	ChatGPT	ChatGPT	GitHub Copilot
404	Andi	NaN	Replit Ghostwriter
...
87460	ChatGPT	ChatGPT	NaN
87486	NaN	NaN	NaN
87526	ChatGPT;Google Bard AI	ChatGPT;Google Bard AI	NaN
87724	NaN	NaN	NaN
88037	NaN	NaN	NaN

	AIDevWantToWorkWith	NEWSOSites \
78	NaN	Stack Overflow
82	GitHub Copilot	Stack Overflow;Stack Exchange
172	NaN	Stack Overflow;Stack Exchange;Stack Overflow f...
397	NaN	Stack Overflow;Stack Exchange

404	NaN	Stack Overflow;Stack Exchange
...
87460	NaN	Stack Overflow
87486	NaN	Stack Overflow;Stack Exchange
87526	NaN	Stack Overflow
87724	NaN	Stack Overflow
88037	NaN	Stack Overflow;Stack Exchange

	SOVisitFreq	SOAccount	\
78	A few times per month or weekly	Yes	
82	Multiple times per day	Yes	
172	Multiple times per day	Yes	
397	Multiple times per day	Yes	
404	A few times per month or weekly	Yes	
...	
87460	Multiple times per day	Yes	
87486	A few times per month or weekly	Yes	
87526	Daily or almost daily	Yes	
87724	A few times per month or weekly	Yes	
88037	Daily or almost daily	Yes	

	SOPartFreq	SOComm	\
78	Less than once per month or monthly	Yes, definitely	
82	A few times per month or weekly	Neutral	
172	Daily or almost daily	Yes, somewhat	
397	Less than once per month or monthly	Yes, somewhat	
404	I have never participated in Q&A on Stack Over...	Yes, somewhat	
...	
87460	A few times per month or weekly	Yes, definitely	
87486	Less than once per month or monthly	Yes, somewhat	
87526	I have never participated in Q&A on Stack Over...	Yes, somewhat	
87724	Less than once per month or monthly	Neutral	
88037	Less than once per month or monthly	Neutral	

	SOAI	\
78	NaN	
82	providing exact copy paste code	
172	It would be good.	
397	It would help produce higher quality questions...	
404	yes	
...	...	
87460	Stack overflow should definitely use AI to imp...	
87486	Kills creativity and thinking ability.	
87526	NaN	
87724	NaN	
88037	do an initial check on question to be posted t...	

87486		NaN
87526	Writing code;Documenting code;Testing code;Com...	
87724		NaN
88037		NaN

		AIToolCurrently Using \
78		Writing code
82		NaN
172	Learning about a codebase;Writing code;Documen...	
397		NaN
404	Learning about a codebase;Project planning;Wri...	
...		...
87460		NaN
87486		NaN
87526	Debugging and getting help	
87724		NaN
88037		NaN

		AIToolNot interested in Using AINextVery different \
78	NaN	NaN
82	NaN	NaN
172	Committing and reviewing code	NaN
397	NaN	NaN
404	NaN	NaN
...
87460	NaN	NaN
87486	NaN	NaN
87526	NaN	NaN
87724	NaN	NaN
88037	NaN	NaN

		AINextNeither different nor similar AINextSomewhat similar \
78	NaN	NaN
82	NaN	NaN
172	NaN	NaN
397	NaN	NaN
404	Project planning	Writing code
...
87460	NaN	NaN
87486	NaN	NaN
87526	NaN	NaN
87724	NaN	NaN
88037	NaN	NaN

	AINextVery similar	AINextSomewhat different TBranch \
78	NaN	NaN No
82	NaN	NaN Yes

172	NaN	NaN	Yes
397	NaN	NaN	Yes
404	NaN	Learning about a codebase	Yes
...
87460	NaN	NaN	Yes
87486	NaN	NaN	Yes
87526	NaN	Debugging and getting help	Yes
87724	NaN	NaN	Yes
88037	NaN	NaN	Yes

		ICorPM	WorkExp	Knowledge_1 \
78		NaN	NaN	NaN
82	Individual contributor		5.0	Agree
172	Individual contributor		3.0	Neither agree nor disagree
397	Individual contributor		1.0	Agree
404	Individual contributor		1.0	Agree
...
87460	Individual contributor		0.0	Neither agree nor disagree
87486	Individual contributor		0.0	Agree
87526	Individual contributor		16.0	Agree
87724	Individual contributor		1.0	Agree
88037	Individual contributor		1.0	Strongly agree

		Knowledge_2	Knowledge_3 \
78		NaN	NaN
82		Agree	Neither agree nor disagree
172		Disagree	Agree
397		Strongly agree	Strongly disagree
404		Agree	Agree
...
87460		Agree	Neither agree nor disagree
87486		Agree	Neither agree nor disagree
87526		Disagree	Agree
87724	Neither agree nor disagree	Neither agree nor disagree	Neither agree nor disagree
88037		Agree	Disagree

		Knowledge_4	Knowledge_5 \
78		NaN	NaN
82		Disagree	Agree
172		Disagree	Neither agree nor disagree
397	Strongly disagree		Strongly disagree
404		Agree	Agree
...
87460		Agree	Agree
87486		Agree	Agree
87526		Agree	Disagree
87724		Agree	Agree

88037	Disagree	Strongly agree
-------	----------	----------------

	Knowledge_6	Knowledge_7 \
78	NaN	NaN
82	Agree	Strongly agree
172	Neither agree nor disagree	Disagree
397	Agree	Agree
404	Neither agree nor disagree	Neither agree nor disagree
...
87460	Neither agree nor disagree	Strongly agree
87486	Disagree	Neither agree nor disagree
87526	Agree	Disagree
87724	Neither agree nor disagree	Agree
88037	Disagree	Disagree

	Knowledge_8	Frequency_1	Frequency_2 \
78	NaN	NaN	NaN
82	Neither agree nor disagree	1-2 times a week	1-2 times a week
172	Disagree	1-2 times a week	1-2 times a week
397	Disagree	1-2 times a week	1-2 times a week
404	Neither agree nor disagree	1-2 times a week	1-2 times a week
...
87460	Disagree	1-2 times a week	1-2 times a week
87486	Neither agree nor disagree	3-5 times a week	6-10 times a week
87526	Agree	3-5 times a week	Never
87724	Agree	3-5 times a week	1-2 times a week
88037	Neither agree nor disagree	1-2 times a week	3-5 times a week

	Frequency_3	TimeSearching	TimeAnswering \
78	NaN	NaN	NaN
82	1-2 times a week	60-120 minutes a day	30-60 minutes a day
172	1-2 times a week	30-60 minutes a day	15-30 minutes a day
397	1-2 times a week	15-30 minutes a day	30-60 minutes a day
404	1-2 times a week	30-60 minutes a day	15-30 minutes a day
...
87460	Never	15-30 minutes a day	15-30 minutes a day
87486	10+ times a week	30-60 minutes a day	30-60 minutes a day
87526	Never	15-30 minutes a day	Less than 15 minutes a day
87724	1-2 times a week	60-120 minutes a day	60-120 minutes a day
88037	1-2 times a week	60-120 minutes a day	15-30 minutes a day

	ProfessionalTech \
78	NaN
82	DevOps function;Developer portal or other cent...
172	Automated testing;Observability tools;Develope...
397	Innersource initiative;Developer portal or oth...
404	None of these

```

...
87460 DevOps function;Microservices;Innersource init...
87486 DevOps function;Microservices;Developer portal...
87526 DevOps function;Microservices;Automated testin...
87724 DevOps function;Microservices;Automated testin...
88037 Automated testing;Continuous integration (CI) ...

```

```

Industry \
78      NaN
82      Information Services, IT, Software Development...
172     Healthcare
397     Manufacturing, Transportation, or Supply Chain
404     Information Services, IT, Software Development...
...
87460   Healthcare
87486   Information Services, IT, Software Development...
87526   Financial Services
87724   Other
88037   Information Services, IT, Software Development...

```

	SurveyLength	SurveyEase	ConvertedCompYearly
78	Appropriate in length	Easy	NaN
82	Appropriate in length	Neither easy nor difficult	NaN
172	Appropriate in length	Easy	NaN
397	Appropriate in length	Easy	12723.0
404	Too long	Neither easy nor difficult	4847.0
...
87460	Appropriate in length	Easy	7731.0
87486	Appropriate in length	Easy	NaN
87526	Too long	Easy	NaN
87724	Appropriate in length	Neither easy nor difficult	NaN
88037	Appropriate in length	Easy	20599.0

[403 rows x 84 columns]

```

[ ]: #Multiple Queries
filter = (data['Country']=='India') & (data['RemoteWork']=='Remote') &
↳(data['ConvertedCompYearly'] > 100000)
data[filter].LanguageHaveWorkedWith.value_counts()

```

```

[ ]: LanguageHaveWorkedWith
C++;HTML/CSS;JavaScript;Python
1
HTML/CSS;Java;JavaScript;Kotlin;PHP;Python;Rust;SQL
1
C++;Go;Java;JavaScript;Python
1

```

```

Bash/Shell (all
shells);Dart;HTML/CSS;Java;JavaScript;Kotlin;Objective-C;Python;SQL;TypeScript
1
Ada;Assembly;Bash/Shell (all shells);C;C#;C++;Clojure;Cobol;Dart;Elixir;Erlang;F
#;Fortran;Go;Groovy;Haskell;HTML/CSS;Java;JavaScript;Julia;Kotlin;Lisp;Lua;Nim;O
bjective-C;OCaml;Perl;PHP;PowerShell;Prolog;Python;R;Raku;Ruby;Rust;Scala;SQL;Sw
ift;TypeScript;Visual Basic (.Net);Zig      1
Prolog;Python
1
JavaScript;TypeScript
1
Go;SQL
1
HTML/CSS;Java;JavaScript;Python;SQL;TypeScript
1
Bash/Shell (all
shells);Go;HTML/CSS;JavaScript;PHP;Python;Ruby;Solidity;SQL;TypeScript
1
C#;Go;Java;JavaScript;TypeScript
1
Flow;HTML/CSS;JavaScript;Kotlin;Objective-C;Swift
1
Bash/Shell (all shells);Java;JavaScript;Kotlin;Python;SQL;TypeScript
1
HTML/CSS;Java;JavaScript
1
C;OCaml
1
HTML/CSS;JavaScript;TypeScript
1
Name: count, dtype: int64

```

```
[ ]: data
```

```

[ ]:      ResponseId      Q120      MainBranch \
0          1 I agree      None of these
1          2 I agree I am a developer by profession
2          3 I agree I am a developer by profession
3          4 I agree I am a developer by profession
4          5 I agree I am a developer by profession
...      ...      ...
89179     89180 I agree I am a developer by profession
89180     89181 I agree I am a developer by profession
89181     89182 I agree I code primarily as a hobby
89182     89183 I agree I am a developer by profession
89183     89184 I agree I am a developer by profession

```

	Age	Employment \
0	18-24 years old	NaN
1	25-34 years old	Employed, full-time
2	45-54 years old	Employed, full-time
3	25-34 years old	Employed, full-time
4	25-34 years old	Employed, full-time;Independent contractor, fr...
...
89179	25-34 years old	Employed, full-time;Independent contractor, fr...
89180	18-24 years old	Student, full-time;Employed, part-time
89181	Prefer not to say	I prefer not to say
89182	Under 18 years old	Employed, part-time;Student, part-time
89183	35-44 years old	Employed, full-time

	RemoteWork \
0	NaN
1	Remote
2	Hybrid (some remote, some in-person)
3	Hybrid (some remote, some in-person)
4	Remote
...	...
89179	Remote
89180	Hybrid (some remote, some in-person)
89181	NaN
89182	Hybrid (some remote, some in-person)
89183	Hybrid (some remote, some in-person)

	CodingActivities \
0	NaN
1	Hobby;Contribute to open-source projects;Boots...
2	Hobby;Professional development or self-paced l...
3	Hobby
4	Hobby;Contribute to open-source projects;Profe...
...	...
89179	Hobby;Bootstrapping a business;Freelance/contr...
89180	School or academic work
89181	NaN
89182	Hobby;School or academic work
89183	Hobby;Professional development or self-paced l...

	EdLevel \
0	NaN
1	Bachelor's degree (B.A., B.S., B.Eng., etc.)
2	Bachelor's degree (B.A., B.S., B.Eng., etc.)
3	Bachelor's degree (B.A., B.S., B.Eng., etc.)
4	Bachelor's degree (B.A., B.S., B.Eng., etc.)
...	...
89179	Associate degree (A.A., A.S., etc.)

89180 Bachelor's degree (B.A., B.S., B.Eng., etc.)
 89181 Something else
 89182 Secondary school (e.g. American high school, G...
 89183 Bachelor's degree (B.A., B.S., B.Eng., etc.)

LearnCode \

0	NaN
1	Books / Physical media;Colleague;Friend or fam...
2	Books / Physical media;Colleague;On the job tr...
3	Colleague;Friend or family member;Other online...
4	Books / Physical media;Online Courses or Certi...
...	...
89179	Online Courses or Certification;Other online r...
89180	Colleague;Online Courses or Certification;Othe...
89181	Books / Physical media;Hackathons (virtual or ...
89182	Online Courses or Certification;Other online r...
89183	Colleague;Online Courses or Certification;Othe...

LearnCodeOnline \

0	NaN
1	Formal documentation provided by the owner of ...
2	Formal documentation provided by the owner of ...
3	Formal documentation provided by the owner of ...
4	Formal documentation provided by the owner of ...
...	...
89179	Formal documentation provided by the owner of ...
89180	Formal documentation provided by the owner of ...
89181	NaN
89182	Formal documentation provided by the owner of ...
89183	Formal documentation provided by the owner of ...

	LearnCodeCoursesCert	YearsCode	YearsCodePro
0	NaN	NaN	NaN
1	Other	18	9
2	NaN	27	23
3	NaN	12	7
4	Other;Codecademy;edX	6	4
...
89179	Udemy	20	5
89180	NaN	5	NaN
89181	Codecademy;Coursera	10	NaN
89182	Udemy	3	NaN
89183	Codecademy;Pluralsight;Coursera	17	12

	DevType	OrgSize
0	NaN	NaN
1	Senior Executive (C-Suite, VP, etc.)	2 to 9 employees

2	Developer, back-end	5,000 to 9,999 employees
3	Developer, front-end	100 to 499 employees
4	Developer, full-stack	20 to 99 employees
...
89179	Developer, front-end	100 to 499 employees
89180	Developer, back-end	NaN
89181	NaN	NaN
89182	System administrator	NaN
89183	Developer, full-stack	100 to 499 employees

	PurchaseInfluence	TechList \
0	NaN	NaN
1	I have a great deal of influence	Investigate
2	I have some influence	Given a list
3	I have some influence	Investigate
4	I have some influence	Investigate
...
89179	I have some influence	Investigate
89180	NaN	Investigate
89181	NaN	NaN
89182	NaN	Investigate
89183	I have some influence	NaN

	BuyNewTool \
0	NaN
1	Start a free trial;Ask developers I know/work ...
2	Start a free trial;Ask developers I know/work ...
3	Start a free trial;Ask developers I know/work ...
4	Start a free trial;Ask developers I know/work ...
...	...
89179	NaN
89180	Start a free trial;Ask developers I know/work ...
89181	NaN
89182	Ask developers I know/work with;Visit develope...
89183	Start a free trial;Ask developers I know/work ...

	Country	Currency	CompTotal \
0	NaN	NaN	NaN
1	United States of America	USD\tUnited States dollar	2.850000e+05
2	United States of America	USD\tUnited States dollar	2.500000e+05
3	United States of America	USD\tUnited States dollar	1.560000e+05
4	Philippines	PHP\tPhilippine peso	1.320000e+06
...
89179	Brazil	BRL\tBrazilian real	2.000000e+05
89180	Romania	NaN	NaN
89181	Israel	NaN	NaN
89182	Switzerland	NaN	NaN

89183 Iran, Islamic Republic of... IRR\tIranian rial 3.300000e+09

```
LanguageHaveWorkedWith \
0 NaN
1 HTML/CSS;JavaScript;Python
2 Bash/Shell (all shells);Go
3 Bash/Shell (all shells);HTML/CSS;JavaScript;PH...
4 HTML/CSS;JavaScript;TypeScript
...
89179 HTML/CSS;Java;JavaScript;SQL;TypeScript
89180 Dart;Java;Python;SQL
89181 Assembly;Bash/Shell (all shells);C;C#;Python;R...
89182 Bash/Shell (all shells);C#;HTML/CSS;Java;JavaS...
89183 C#;Go;JavaScript;SQL;TypeScript
```

```
LanguageWantToWorkWith \
0 NaN
1 Bash/Shell (all shells);C#;Dart;Elixir;GDScrip...
2 Haskell;OCaml;Rust
3 Bash/Shell (all shells);HTML/CSS;JavaScript;Ru...
4 HTML/CSS;JavaScript;Python;Rust;TypeScript
...
89179 Bash/Shell (all shells);C;Go;HTML/CSS;JavaScri...
89180 Java;JavaScript;Python;SQL;TypeScript
89181 Python;Rust
89182 Bash/Shell (all shells);HTML/CSS;JavaScript;Po...
89183 C#;Go;JavaScript;SQL;TypeScript
```

```
DatabaseHaveWorkedWith \
0 NaN
1 Supabase
2 NaN
3 PostgreSQL;Redis
4 BigQuery;Elasticsearch;MongoDB;PostgreSQL
...
89179 MongoDB;MySQL;PostgreSQL;SQLite
89180 PostgreSQL
89181 SQLite
89182 MariaDB;Microsoft SQL Server;MongoDB;MySQL;Red...
89183 Microsoft SQL Server;Redis;SQLite
```

```
DatabaseWantToWorkWith \
0 NaN
1 Firebase Realtime Database;Supabase
2 NaN
3 PostgreSQL;Redis
4 Elasticsearch;MongoDB;PostgreSQL;Redis;Supabase
```

```

...
89179 PostgreSQL;SQLite
89180 PostgreSQL
89181 NaN
89182 Cassandra;Cosmos DB;Dynamodb;MariaDB;Microsoft...
89183 Microsoft SQL Server;Redis;SQLite

PlatformHaveWorkedWith \
0 NaN
1 Amazon Web Services (AWS);Netlify;Vercel
2 Amazon Web Services (AWS);Google Cloud;OpenSta...
3 Cloudflare;Heroku
4 Amazon Web Services (AWS);Firebase;Heroku;Netl...
...
89179 Digital Ocean;Firebase;Google Cloud;Heroku;Vercel
89180 NaN
89181 Amazon Web Services (AWS)
89182 Amazon Web Services (AWS);Cloudflare;Google Cl...
89183 Hetzner

PlatformWantToWorkWith \
0 NaN
1 Fly.io;Netlify;Render
2 NaN
3 Cloudflare;Heroku
4 Amazon Web Services (AWS);Cloudflare;Digital O...
...
89179 Amazon Web Services (AWS);Heroku;Netlify;Vercel
89180 NaN
89181 Amazon Web Services (AWS);Microsoft Azure
89182 Amazon Web Services (AWS);Cloudflare;Digital O...
89183 Hetzner;Microsoft Azure

WebframeHaveWorkedWith \
0 NaN
1 Next.js;React;Remix;Vue.js
2 NaN
3 Node.js;React;Ruby on Rails;Vue.js;WordPress
4 Express;Gatsby;NestJS;Next.js;Node.js;React
...
89179 Angular;AngularJS;Express;jQuery;Node.js;Nuxt...
89180 Spring Boot
89181 NaN
89182 Express;Next.js;Node.js;React;WordPress
89183 Angular;ASP.NET;ASP.NET CORE;Blazor;Node.js

```

```

WebframeWantToWorkWith \

```

```

0                                     NaN
1           Deno;Elm;Nuxt.js;React;Svelte;Vue.js
2                                     NaN
3           Node.js;Ruby on Rails;Vue.js
4   Express;NestJS;Next.js;Node.js;React;Remix;Vue.js
...
89179           Express;Node.js;Nuxt.js;Svelte;Vue.js
89180                               Spring Boot
89181                               NaN
89182   Angular;AngularJS;Express;Next.js;Node.js;Reac...
89183   Angular;ASP.NET;ASP.NET CORE;Blazor;Deno;Node...

                                     MiscTechHaveWorkedWith \
0                                     NaN
1           Electron;React Native;Tauri
2                                     NaN
3                                     NaN
4                                     NaN
...
89179                               Flutter
89180   Flutter;Opencv;RabbitMQ;Spring Framework;Torch...
89181           NumPy;Pandas;TensorFlow
89182           CUDA;NumPy;Torch/PyTorch
89183   .NET (5+) ;.NET Framework (1.0 - 4.8)

                                     MiscTechWantToWorkWith \
0                                     NaN
1   Capacitor;Electron;Tauri;Uno Platform;Xamarin
2                                     NaN
3                                     NaN
4                                     NaN
...
89179                               NaN
89180           RabbitMQ;Spring Framework;Torch/PyTorch
89181           NumPy;Pandas;Torch/PyTorch
89182   CUDA;Flutter;NumPy;TensorFlow;Torch/PyTorch
89183   .NET (5+) ;Apache Kafka;RabbitMQ;Tauri

                                     ToolsTechHaveWorkedWith \
0                                     NaN
1   Docker;Kubernetes;npm;Pip;Vite;Webpack;Yarn
2           Cargo;Docker;Kubernetes;Make;Nix
3           Homebrew;npm;Vite;Webpack;Yarn
4           Docker;npm;Webpack;Yarn
...
89179   Chocolatey;CMake;Docker;Maven (build tool);npm...
89180           Maven (build tool);Pip

```

```

89181                                Cargo
89182                Docker;Kubernetes;npm;Podman;Vite
89183                Docker;npm;NuGet;pnpm;Vite;Webpack;Yarn

                                ToolsTechWantToWorkWith \
0                                NaN
1    Godot;npm;pnpm;Unity 3D;Unreal Engine;Vite;Web...
2                                Cargo;Kubernetes;Nix
3                                Homebrew;npm;Vite
4                                Docker;npm;Yarn
...                                ...
89179                Docker;npm;Pip;Vite;Yarn
89180                Maven (build tool);Pip
89181                Cargo;Docker;Kubernetes;Terraform
89182    Ansible;APT;Docker;Kubernetes;npm;Pip;Podman;T...
89183                Bun;Docker;npm;NuGet;pnpm;Vite;Yarn

                                NEWCollabToolsHaveWorkedWith \
0                                NaN
1                                Vim;Visual Studio Code
2                                Emacs;Helix
3    IntelliJ IDEA;Vim;Visual Studio Code;WebStorm
4                                Vim;Visual Studio Code
...                                ...
89179    Android Studio;Atom;Eclipse;IntelliJ IDEA;Netb...
89180                Android Studio;IntelliJ IDEA;PyCharm
89181    Jupyter Notebook/JupyterLab;Neovim;Visual Stud...
89182    Eclipse;IntelliJ IDEA;Nano;Notepad++;PyCharm;V...
89183                Visual Studio;Visual Studio Code

                                NEWCollabToolsWantToWorkWith \
0                                NaN
1                                Vim;Visual Studio Code
2                                Emacs;Helix
3    IntelliJ IDEA;Vim;WebStorm
4                                Vim;Visual Studio Code
...                                ...
89179                Visual Studio Code
89180                IntelliJ IDEA;PyCharm
89181    Jupyter Notebook/JupyterLab;Neovim;Visual Stud...
89182    Jupyter Notebook/JupyterLab;Notepad++;Visual S...
89183                Visual Studio;Visual Studio Code

                                OpSysPersonal use \
0                                NaN
1    iOS;iPadOS;MacOS;Windows;Windows Subsystem for...
2                                MacOS;Other Linux-based

```

3 iOS;iPadOS;MacOS
 4 Other (Please Specify):
 ...
 89179 Android;Windows
 89180 Windows
 89181 Windows
 89182 Arch;Debian;iOS;iPadOS;MacOS;Ubuntu;Windows;Wi...
 89183 Windows

OpSysProfessional use \

0 NaN
 1 MacOS;Windows;Windows Subsystem for Linux (WSL)
 2 MacOS;Other Linux-based
 3 iOS;iPadOS;MacOS
 4 Other (Please Specify):
 ...
 89179 Android;Ubuntu;Windows
 89180 Windows
 89181 NaN
 89182 BSD;Red Hat;Solaris;Ubuntu;Windows
 89183 Windows

OfficeStackAsyncHaveWorkedWith \

0 NaN
 1 Asana;Basecamp;GitHub Discussions;Jira;Linear;...
 2 Markdown File;Stack Overflow for Teams
 3 Jira
 4 Confluence;Jira;Notion
 ...
 89179 Asana;Confluence;Jira;Markdown File;Miro;Notio...
 89180 Jira
 89181 NaN
 89182 Confluence;Jira;Trello
 89183 NaN

OfficeStackAsyncWantToWorkWith \

0 NaN
 1 GitHub Discussions;Linear;Notion;Trello
 2 Markdown File
 3 Jira
 4 Confluence;Jira;Notion
 ...
 89179 Markdown File;Miro;Wikis
 89180 Jira
 89181 NaN
 89182 Azure Devops;Confluence;Jira
 89183 NaN

	OfficeStackSyncHaveWorkedWith	\
0		NaN
1	Cisco Webex Teams;Discord;Google Chat;Google M...	
2	Microsoft Teams;Slack;Zoom	
3	Discord;Google Meet;Microsoft Teams;Slack;Zoom	
4	Discord;Google Meet;Slack;Zoom	
...		...
89179	Discord;Google Meet;Jitsi;Microsoft Teams;Slac...	
89180	Microsoft Teams	
89181		NaN
89182	Cisco Webex Teams;Discord;Microsoft Teams;Sign...	
89183	Google Meet;Skype;Telegram;Whatsapp	

	OfficeStackSyncWantToWorkWith	\
0		NaN
1	Discord;Signal;Slack;Zoom	
2	Slack;Zoom	
3	Discord;Google Meet;Slack;Zoom	
4	Discord;Google Meet;Slack;Zoom	
...		...
89179	Discord;Google Meet;Jitsi;Microsoft Teams;Tele...	
89180	Microsoft Teams	
89181		NaN
89182	Discord;Microsoft Teams;Skype	
89183	Google Meet;Skype;Telegram;Whatsapp	

	AISeachHaveWorkedWith	AISeachWantToWorkWith	\
0	NaN		NaN
1	ChatGPT	ChatGPT;Neeva AI	
2	NaN		NaN
3	NaN		NaN
4	ChatGPT	ChatGPT	
...	
89179	ChatGPT	ChatGPT	
89180	ChatGPT	ChatGPT	
89181	ChatGPT;Quora Poe	ChatGPT;Quora Poe	
89182	Bing AI;ChatGPT;WolframAlpha	Bing AI;ChatGPT;Google Bard AI	
89183	ChatGPT	ChatGPT	

	AIDevHaveWorkedWith	AIDevWantToWorkWith	\
0	NaN	NaN	
1	GitHub Copilot	GitHub Copilot	
2	NaN	NaN	
3	NaN	NaN	
4	NaN	NaN	
...	

89179	Whispr AI	Whispr AI
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	GitHub Copilot	GitHub Copilot

		NEWSOSites \
0		NaN
1	Stack Overflow;Stack Exchange	
2	Stack Overflow;Stack Exchange;Stack Overflow f...	
3	Stack Overflow;Stack Exchange	
4	Stack Overflow;Stack Exchange	
...		...
89179	Stack Overflow;Stack Exchange	
89180	Stack Overflow;Stack Exchange	
89181	Stack Overflow;Stack Exchange	
89182	Stack Overflow;Stack Exchange;Stack Overflow f...	
89183	Stack Overflow	

		SOVisitFreq	SOAccount \
0		NaN	NaN
1	Daily or almost daily		Yes
2	A few times per month or weekly		Yes
3	A few times per week		Yes
4	A few times per week		No
...	
89179	Multiple times per day		Yes
89180	Multiple times per day		Yes
89181	NaN		NaN
89182	A few times per month or weekly		No
89183	A few times per week		Yes

		SOPartFreq	SOComm \
0		NaN	NaN
1	A few times per month or weekly		Yes, definitely
2	Less than once per month or monthly		Neutral
3	Less than once per month or monthly		No, not really
4		NaN	Neutral
...	
89179	I have never participated in Q&A on Stack Over...		Neutral
89180	I have never participated in Q&A on Stack Over...		No, not really
89181		NaN	NaN
89182		NaN	Yes, somewhat
89183	Less than once per month or monthly		Yes, somewhat

		SOAI \
0		NaN

1 I don't think it's super necessary, but I thin...
 2 NaN
 3 I'm wearing of Stack Overflow using AI.
 4 Using AI to suggest better answer to my questi...
 ...
 89179 NaN
 89180 I'm not sure
 89181 NaN
 89182 Define Parameters more detailed. I believe in ...
 89183 NaN

	AISelect	AISelect \	AISelect \
0	NaN	NaN	
1	Yes	Indifferent	
2	No, and I don't plan to	NaN	
3	No, and I don't plan to	NaN	
4	Yes	Very favorable	
...	
89179	Yes	Very favorable	
89180	Yes	Very favorable	
89181	No, but I plan to soon	Very favorable	
89182	Yes	Favorable	
89183	Yes	Favorable	

	AIAcc \
0	NaN
1	Other (please explain)
2	NaN
3	NaN
4	Increase productivity;Greater efficiency;Speed...
...	...
89179	Increase productivity;Greater efficiency;Speed...
89180	Speed up learning
89181	NaN
89182	Increase productivity;Greater efficiency;Speed...
89183	Increase productivity;Greater efficiency;Speed...

	AIBen \
0	NaN
1	Somewhat distrust
2	NaN
3	NaN
4	Somewhat trust
...	...
89179	Somewhat trust
89180	Somewhat trust
89181	Highly trust

89182 Somewhat distrust
89183 Neither trust nor distrust

 AIToolInterested in Using \

0		NaN
1	Learning about a codebase;Writing code;Debuggi...	
2		NaN
3		NaN
4	Project planning;Testing code;Committing and r...	
...		...
89179	Learning about a codebase;Project planning;Wri...	
89180	Writing code;Documenting code;Testing code	
89181		NaN
89182	Learning about a codebase;Project planning;Wri...	
89183	Learning about a codebase;Writing code	

 AIToolCurrently Using \

0		NaN
1	Writing code;Committing and reviewing code	
2		NaN
3		NaN
4	Learning about a codebase;Writing code;Documen...	
...		...
89179	Writing code;Documenting code;Debugging and ge...	
89180	Learning about a codebase;Debugging and gettin...	
89181		NaN
89182	Learning about a codebase;Writing code;Debuggi...	
89183	Learning about a codebase;Writing code	

 AIToolNot interested in Using \

0		NaN
1		NaN
2		NaN
3		NaN
4		NaN
...		...
89179	Deployment and monitoring	
89180	Project planning;Committing and reviewing code...	
89181		NaN
89182	Committing and reviewing code	
89183		NaN

 AINextVery different \

0		NaN
1		NaN
2		NaN
3		NaN

4	NaN
...	...
89179	NaN
89180	NaN
89181	NaN
89182	NaN
89183	Learning about a codebase

	AINextNeither different nor similar \
0	NaN
1	NaN
2	NaN
3	NaN
4	NaN
...	...
89179	NaN
89180	NaN
89181	NaN
89182	Debugging and getting help;Deployment and moni...
89183	NaN

	AINextSomewhat similar	AINextVery similar \
0	NaN	NaN
1	NaN	NaN
2	NaN	NaN
3	NaN	NaN
4	NaN	NaN
...
89179	NaN	NaN
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	NaN	NaN

	AINextSomewhat different	TBranch \
0	NaN	NaN
1	NaN	Yes
2	NaN	Yes
3	NaN	Yes
4	NaN	Yes
...
89179	Writing code;Documenting code;Debugging and ge...	No
89180	Learning about a codebase;Debugging and gettin...	NaN
89181	NaN	NaN
89182	Learning about a codebase;Writing code	NaN
89183	Writing code	Yes

	ICorPM	WorkExp	Knowledge_1 \
0	NaN	NaN	NaN
1	People manager	10.0	Strongly agree
2	Individual contributor	23.0	Strongly agree
3	Individual contributor	7.0	Strongly agree
4	Individual contributor	6.0	Agree
...
89179	NaN	NaN	NaN
89180	NaN	NaN	NaN
89181	NaN	NaN	NaN
89182	NaN	NaN	NaN
89183	People manager	14.0	Agree

	Knowledge_2	Knowledge_3	Knowledge_4 \
0	NaN	NaN	NaN
1	Agree	Strongly agree	Agree
2	Neither agree nor disagree	Agree	Agree
3	Strongly disagree	Strongly agree	Strongly agree
4	Strongly agree	Agree	Agree
...
89179	NaN	NaN	NaN
89180	NaN	NaN	NaN
89181	NaN	NaN	NaN
89182	NaN	NaN	NaN
89183	Neither agree nor disagree	Neither agree nor disagree	Strongly agree

	Knowledge_5	Knowledge_6 \
0	NaN	NaN
1	Agree	Agree
2	Agree	Agree
3	Agree	Neither agree nor disagree
4	Neither agree nor disagree	Agree
...
89179	NaN	NaN
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	Strongly agree	Agree

	Knowledge_7	Knowledge_8 \
0	NaN	NaN
1	Agree	Strongly agree
2	Agree	Agree
3	Agree	Agree
4	Strongly agree	Agree
...
89179	NaN	NaN

89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	Neither agree nor disagree	Neither agree nor disagree

	Frequency_1	Frequency_2	Frequency_3 \
0	NaN	NaN	NaN
1	1-2 times a week	10+ times a week	Never
2	6-10 times a week	6-10 times a week	3-5 times a week
3	1-2 times a week	10+ times a week	1-2 times a week
4	1-2 times a week	1-2 times a week	3-5 times a week
...
89179	NaN	NaN	NaN
89180	NaN	NaN	NaN
89181	NaN	NaN	NaN
89182	NaN	NaN	NaN
89183	Never	1-2 times a week	1-2 times a week

	TimeSearching	TimeAnswering \
0	NaN	NaN
1	15-30 minutes a day	15-30 minutes a day
2	30-60 minutes a day	30-60 minutes a day
3	15-30 minutes a day	30-60 minutes a day
4	60-120 minutes a day	30-60 minutes a day
...
89179	NaN	NaN
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	60-120 minutes a day	30-60 minutes a day

	ProfessionalTech \
0	NaN
1	DevOps function;Microservices;Automated testin...
2	DevOps function;Microservices;Automated testin...
3	Automated testing;Continuous integration (CI) ...
4	Microservices;Automated testing;Observability ...
...	...
89179	NaN
89180	NaN
89181	NaN
89182	NaN
89183	DevOps function;Developer portal or other cent...

	Industry \
0	NaN
1	Information Services, IT, Software Development...

```

2      Information Services, IT, Software Development...
3                                          NaN
4                                          Other
...
89179                                     NaN
89180                                     NaN
89181                                     NaN
89182                                     NaN
89183 Information Services, IT, Software Development...

```

	SurveyLength	SurveyEase	ConvertedCompYearly
0	NaN	NaN	NaN
1	Appropriate in length	Easy	285000.0
2	Appropriate in length	Easy	250000.0
3	Appropriate in length	Easy	156000.0
4	Appropriate in length	Neither easy nor difficult	23456.0
...
89179	Too long	Neither easy nor difficult	NaN
89180	Too long	Easy	NaN
89181	Too long	Neither easy nor difficult	NaN
89182	Appropriate in length	Neither easy nor difficult	NaN
89183	Appropriate in length	Easy	NaN

[89184 rows x 84 columns]

```

[ ]: #set index to the ResponseId column
data = pd.read_csv(r"C:
↳\Users\Dell\Downloads\stack-overflow-developer-survey-2023\survey_results_public.
↳csv",index_col='ResponseId')

```

```
[ ]: data
```

	Q120	MainBranch	Age \
ResponseId			
1	I agree	None of these	18-24 years old
2	I agree	I am a developer by profession	25-34 years old
3	I agree	I am a developer by profession	45-54 years old
4	I agree	I am a developer by profession	25-34 years old
5	I agree	I am a developer by profession	25-34 years old
...
89180	I agree	I am a developer by profession	25-34 years old
89181	I agree	I am a developer by profession	18-24 years old
89182	I agree	I code primarily as a hobby	Prefer not to say
89183	I agree	I am a developer by profession	Under 18 years old
89184	I agree	I am a developer by profession	35-44 years old

Employment \

ResponseId	
1	NaN
2	Employed, full-time
3	Employed, full-time
4	Employed, full-time
5	Employed, full-time;Independent contractor, fr...
...	...
89180	Employed, full-time;Independent contractor, fr...
89181	Student, full-time;Employed, part-time
89182	I prefer not to say
89183	Employed, part-time;Student, part-time
89184	Employed, full-time

RemoteWork \

ResponseId	
1	NaN
2	Remote
3	Hybrid (some remote, some in-person)
4	Hybrid (some remote, some in-person)
5	Remote
...	...
89180	Remote
89181	Hybrid (some remote, some in-person)
89182	NaN
89183	Hybrid (some remote, some in-person)
89184	Hybrid (some remote, some in-person)

CodingActivities \

ResponseId	
1	NaN
2	Hobby;Contribute to open-source projects;Boots...
3	Hobby;Professional development or self-paced l...
4	Hobby
5	Hobby;Contribute to open-source projects;Profe...
...	...
89180	Hobby;Bootstrapping a business;Freelance/contr...
89181	School or academic work
89182	NaN
89183	Hobby;School or academic work
89184	Hobby;Professional development or self-paced l...

EdLevel \

ResponseId	
1	NaN
2	Bachelor's degree (B.A., B.S., B.Eng., etc.)
3	Bachelor's degree (B.A., B.S., B.Eng., etc.)
4	Bachelor's degree (B.A., B.S., B.Eng., etc.)

5	Bachelor's degree (B.A., B.S., B.Eng., etc.)
...	...
89180	Associate degree (A.A., A.S., etc.)
89181	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89182	Something else
89183	Secondary school (e.g. American high school, G...
89184	Bachelor's degree (B.A., B.S., B.Eng., etc.)

ResponseId	LearnCode \
1	NaN
2	Books / Physical media;Colleague;Friend or fam...
3	Books / Physical media;Colleague;On the job tr...
4	Colleague;Friend or family member;Other online...
5	Books / Physical media;Online Courses or Certi...
...	...
89180	Online Courses or Certification;Other online r...
89181	Colleague;Online Courses or Certification;Othe...
89182	Books / Physical media;Hackathons (virtual or ...
89183	Online Courses or Certification;Other online r...
89184	Colleague;Online Courses or Certification;Othe...

ResponseId	LearnCodeOnline \
1	NaN
2	Formal documentation provided by the owner of ...
3	Formal documentation provided by the owner of ...
4	Formal documentation provided by the owner of ...
5	Formal documentation provided by the owner of ...
...	...
89180	Formal documentation provided by the owner of ...
89181	Formal documentation provided by the owner of ...
89182	NaN
89183	Formal documentation provided by the owner of ...
89184	Formal documentation provided by the owner of ...

ResponseId	LearnCodeCoursesCert	YearsCode	YearsCodePro \
1	NaN	NaN	NaN
2	Other	18	9
3	NaN	27	23
4	NaN	12	7
5	Other;Codecademy;edX	6	4
...
89180	Udemy	20	5
89181	NaN	5	NaN
89182	Codecademy;Coursera	10	NaN

89183	Udemy	3	NaN
89184	Codecademy;Pluralsight;Coursera	17	12

ResponseId	DevType	OrgSize \
1	NaN	NaN
2	Senior Executive (C-Suite, VP, etc.)	2 to 9 employees
3	Developer, back-end	5,000 to 9,999 employees
4	Developer, front-end	100 to 499 employees
5	Developer, full-stack	20 to 99 employees
...
89180	Developer, front-end	100 to 499 employees
89181	Developer, back-end	NaN
89182	NaN	NaN
89183	System administrator	NaN
89184	Developer, full-stack	100 to 499 employees

ResponseId	PurchaseInfluence	TechList \
1	NaN	NaN
2	I have a great deal of influence	Investigate
3	I have some influence	Given a list
4	I have some influence	Investigate
5	I have some influence	Investigate
...
89180	I have some influence	Investigate
89181	NaN	Investigate
89182	NaN	NaN
89183	NaN	Investigate
89184	I have some influence	NaN

ResponseId	BuyNewTool \
1	NaN
2	Start a free trial;Ask developers I know/work ...
3	Start a free trial;Ask developers I know/work ...
4	Start a free trial;Ask developers I know/work ...
5	Start a free trial;Ask developers I know/work ...
...	...
89180	NaN
89181	Start a free trial;Ask developers I know/work ...
89182	NaN
89183	Ask developers I know/work with;Visit develop...
89184	Start a free trial;Ask developers I know/work ...

ResponseId	Country	Currency \
------------	---------	------------

1		NaN	NaN
2	United States of America	USD\tUnited States dollar	
3	United States of America	USD\tUnited States dollar	
4	United States of America	USD\tUnited States dollar	
5	Philippines	PHP\tPhilippine peso	
...	
89180	Brazil	BRL\tBrazilian real	
89181	Romania		NaN
89182	Israel		NaN
89183	Switzerland		NaN
89184	Iran, Islamic Republic of...	IRR\tIranian rial	

	CompTotal	LanguageHaveWorkedWith \
ResponseId		
1	NaN	NaN
2	2.850000e+05	HTML/CSS;JavaScript;Python
3	2.500000e+05	Bash/Shell (all shells);Go
4	1.560000e+05	Bash/Shell (all shells);HTML/CSS;JavaScript;PH...
5	1.320000e+06	HTML/CSS;JavaScript;TypeScript
...
89180	2.000000e+05	HTML/CSS;Java;JavaScript;SQL;TypeScript
89181	NaN	Dart;Java;Python;SQL
89182	NaN	Assembly;Bash/Shell (all shells);C;C#;Python;R...
89183	NaN	Bash/Shell (all shells);C#;HTML/CSS;Java;JavaS...
89184	3.300000e+09	C#;Go;JavaScript;SQL;TypeScript

	LanguageWantToWorkWith \
ResponseId	
1	NaN
2	Bash/Shell (all shells);C#;Dart;Elixir;GDScrip...
3	Haskell;OCaml;Rust
4	Bash/Shell (all shells);HTML/CSS;JavaScript;Ru...
5	HTML/CSS;JavaScript;Python;Rust;TypeScript
...	...
89180	Bash/Shell (all shells);C;Go;HTML/CSS;JavaScri...
89181	Java;JavaScript;Python;SQL;TypeScript
89182	Python;Rust
89183	Bash/Shell (all shells);HTML/CSS;JavaScript;Po...
89184	C#;Go;JavaScript;SQL;TypeScript

	DatabaseHaveWorkedWith \
ResponseId	
1	NaN
2	Supabase
3	NaN
4	PostgreSQL;Redis
5	BigQuery;Elasticsearch;MongoDB;PostgreSQL

...	...
89180	MongoDB;MySQL;PostgreSQL;SQLite
89181	PostgreSQL
89182	SQLite
89183	MariaDB;Microsoft SQL Server;MongoDB;MySQL;Red...
89184	Microsoft SQL Server;Redis;SQLite

DatabaseWantToWorkWith \

ResponseId

1	NaN
2	Firebase Realtime Database;Supabase
3	NaN
4	PostgreSQL;Redis
5	Elasticsearch;MongoDB;PostgreSQL;Redis;Supabase
...	...
89180	PostgreSQL;SQLite
89181	PostgreSQL
89182	NaN
89183	Cassandra;Cosmos DB;Dynamodb;MariaDB;Microsoft...
89184	Microsoft SQL Server;Redis;SQLite

PlatformHaveWorkedWith \

ResponseId

1	NaN
2	Amazon Web Services (AWS);Netlify;Vercel
3	Amazon Web Services (AWS);Google Cloud;OpenSta...
4	Cloudflare;Heroku
5	Amazon Web Services (AWS);Firebase;Heroku;Netl...
...	...
89180	Digital Ocean;Firebase;Google Cloud;Heroku;Vercel
89181	NaN
89182	Amazon Web Services (AWS)
89183	Amazon Web Services (AWS);Cloudflare;Google Cl...
89184	Hetzner

PlatformWantToWorkWith \

ResponseId

1	NaN
2	Fly.io;Netlify;Render
3	NaN
4	Cloudflare;Heroku
5	Amazon Web Services (AWS);Cloudflare;Digital O...
...	...
89180	Amazon Web Services (AWS);Heroku;Netlify;Vercel
89181	NaN
89182	Amazon Web Services (AWS);Microsoft Azure
89183	Amazon Web Services (AWS);Cloudflare;Digital O...

89184	Hetzner;Microsoft Azure
-------	-------------------------

	WebframeHaveWorkedWith \
ResponseId	
1	NaN
2	Next.js;React;Remix;Vue.js
3	NaN
4	Node.js;React;Ruby on Rails;Vue.js;WordPress
5	Express;Gatsby;NestJS;Next.js;Node.js;React
...	...
89180	Angular;AngularJS;Express;jQuery;Node.js;Nuxt...
89181	Spring Boot
89182	NaN
89183	Express;Next.js;Node.js;React;WordPress
89184	Angular;ASP.NET;ASP.NET CORE;Blazor;Node.js

	WebframeWantToWorkWith \
ResponseId	
1	NaN
2	Deno;Elm;Nuxt.js;React;Svelte;Vue.js
3	NaN
4	Node.js;Ruby on Rails;Vue.js
5	Express;NestJS;Next.js;Node.js;React;Remix;Vue.js
...	...
89180	Express;Node.js;Nuxt.js;Svelte;Vue.js
89181	Spring Boot
89182	NaN
89183	Angular;AngularJS;Express;Next.js;Node.js;Reac...
89184	Angular;ASP.NET;ASP.NET CORE;Blazor;Deno;Node...

	MiscTechHaveWorkedWith \
ResponseId	
1	NaN
2	Electron;React Native;Tauri
3	NaN
4	NaN
5	NaN
...	...
89180	Flutter
89181	Flutter;Opencv;RabbitMQ;Spring Framework;Torch...
89182	NumPy;Pandas;TensorFlow
89183	CUDA;NumPy;Torch/PyTorch
89184	.NET (5+) ;.NET Framework (1.0 - 4.8)

	MiscTechWantToWorkWith \
ResponseId	
1	NaN

2	Capacitor;Electron;Tauri;Uno Platform;Xamarin
3	NaN
4	NaN
5	NaN
...	...
89180	NaN
89181	RabbitMQ;Spring Framework;Torch/PyTorch
89182	NumPy;Pandas;Torch/PyTorch
89183	CUDA;Flutter;NumPy;TensorFlow;Torch/PyTorch
89184	.NET (5+) ;Apache Kafka;RabbitMQ;Tauri

ToolsTechHaveWorkedWith \

ResponseId

1	NaN
2	Docker;Kubernetes;npm;Pip;Vite;Webpack;Yarn
3	Cargo;Docker;Kubernetes;Make;Nix
4	Homebrew;npm;Vite;Webpack;Yarn
5	Docker;npm;Webpack;Yarn
...	...
89180	Chocolatey;CMake;Docker;Maven (build tool);npm...
89181	Maven (build tool);Pip
89182	Cargo
89183	Docker;Kubernetes;npm;Podman;Vite
89184	Docker;npm;NuGet;pnpm;Vite;Webpack;Yarn

ToolsTechWantToWorkWith \

ResponseId

1	NaN
2	Godot;npm;pnpm;Unity 3D;Unreal Engine;Vite;Web...
3	Cargo;Kubernetes;Nix
4	Homebrew;npm;Vite
5	Docker;npm;Yarn
...	...
89180	Docker;npm;Pip;Vite;Yarn
89181	Maven (build tool);Pip
89182	Cargo;Docker;Kubernetes;Terraform
89183	Ansible;APT;Docker;Kubernetes;npm;Pip;Podman;T...
89184	Bun;Docker;npm;NuGet;pnpm;Vite;Yarn

NEWCollabToolsHaveWorkedWith \

ResponseId

1	NaN
2	Vim;Visual Studio Code
3	Emacs;Helix
4	IntelliJ IDEA;Vim;Visual Studio Code;WebStorm
5	Vim;Visual Studio Code
...	...

89180	Android Studio;Atom;Eclipse;IntelliJ IDEA;Netb...
89181	Android Studio;IntelliJ IDEA;PyCharm
89182	Jupyter Notebook/JupyterLab;Neovim;Visual Stud...
89183	Eclipse;IntelliJ IDEA;Nano;Notepad++;PyCharm;V...
89184	Visual Studio;Visual Studio Code

NEWCollabToolsWantToWorkWith \

ResponseId

1	NaN
2	Vim;Visual Studio Code
3	Emacs;Helix
4	IntelliJ IDEA;Vim;WebStorm
5	Vim;Visual Studio Code
...	...
89180	Visual Studio Code
89181	IntelliJ IDEA;PyCharm
89182	Jupyter Notebook/JupyterLab;Neovim;Visual Stud...
89183	Jupyter Notebook/JupyterLab;Notepad++;Visual S...
89184	Visual Studio;Visual Studio Code

OpSysPersonal use \

ResponseId

1	NaN
2	iOS;iPadOS;MacOS;Windows;Windows Subsystem for...
3	MacOS;Other Linux-based
4	iOS;iPadOS;MacOS
5	Other (Please Specify):
...	...
89180	Android;Windows
89181	Windows
89182	Windows
89183	Arch;Debian;iOS;iPadOS;MacOS;Ubuntu;Windows;Wi...
89184	Windows

OpSysProfessional use \

ResponseId

1	NaN
2	MacOS;Windows;Windows Subsystem for Linux (WSL)
3	MacOS;Other Linux-based
4	iOS;iPadOS;MacOS
5	Other (Please Specify):
...	...
89180	Android;Ubuntu;Windows
89181	Windows
89182	NaN
89183	BSD;Red Hat;Solaris;Ubuntu;Windows
89184	Windows

	OfficeStackAsyncHaveWorkedWith \
ResponseId	
1	NaN
2	Asana;Basecamp;GitHub Discussions;Jira;Linear;...
3	Markdown File;Stack Overflow for Teams
4	Jira
5	Confluence;Jira;Notion
...	...
89180	Asana;Confluence;Jira;Markdown File;Miro;Notio...
89181	Jira
89182	NaN
89183	Confluence;Jira;Trello
89184	NaN

	OfficeStackAsyncWantToWorkWith \
ResponseId	
1	NaN
2	GitHub Discussions;Linear;Notion;Trello
3	Markdown File
4	Jira
5	Confluence;Jira;Notion
...	...
89180	Markdown File;Miro;Wikis
89181	Jira
89182	NaN
89183	Azure Devops;Confluence;Jira
89184	NaN

	OfficeStackSyncHaveWorkedWith \
ResponseId	
1	NaN
2	Cisco Webex Teams;Discord;Google Chat;Google M...
3	Microsoft Teams;Slack;Zoom
4	Discord;Google Meet;Microsoft Teams;Slack;Zoom
5	Discord;Google Meet;Slack;Zoom
...	...
89180	Discord;Google Meet;Jitsi;Microsoft Teams;Slac...
89181	Microsoft Teams
89182	NaN
89183	Cisco Webex Teams;Discord;Microsoft Teams;Sign...
89184	Google Meet;Skype;Telegram;Whatsapp

	OfficeStackSyncWantToWorkWith \
ResponseId	
1	NaN
2	Discord;Signal;Slack;Zoom

3		Slack;Zoom
4		Discord;Google Meet;Slack;Zoom
5		Discord;Google Meet;Slack;Zoom
...		...
89180	Discord;Google Meet;Jitsi;Microsoft Teams;Tele...	
89181		Microsoft Teams
89182		NaN
89183		Discord;Microsoft Teams;Skype
89184		Google Meet;Skype;Telegram;Whatsapp

	AIsearchHaveWorkedWith	AIsearchWantToWorkWith \
ResponseId		
1	NaN	NaN
2	ChatGPT	ChatGPT;Neeva AI
3	NaN	NaN
4	NaN	NaN
5	ChatGPT	ChatGPT
...
89180	ChatGPT	ChatGPT
89181	ChatGPT	ChatGPT
89182	ChatGPT;Quora Poe	ChatGPT;Quora Poe
89183	Bing AI;ChatGPT;WolframAlpha	Bing AI;ChatGPT;Google Bard AI
89184	ChatGPT	ChatGPT

	AIdevHaveWorkedWith	AIdevWantToWorkWith \
ResponseId		
1	NaN	NaN
2	GitHub Copilot	GitHub Copilot
3	NaN	NaN
4	NaN	NaN
5	NaN	NaN
...
89180	Whispr AI	Whispr AI
89181	NaN	NaN
89182	NaN	NaN
89183	NaN	NaN
89184	GitHub Copilot	GitHub Copilot

	NEWSOSites \
ResponseId	
1	NaN
2	Stack Overflow;Stack Exchange
3	Stack Overflow;Stack Exchange;Stack Overflow f...
4	Stack Overflow;Stack Exchange
5	Stack Overflow;Stack Exchange
...	...
89180	Stack Overflow;Stack Exchange

89181	Stack Overflow;Stack Exchange
89182	Stack Overflow;Stack Exchange
89183	Stack Overflow;Stack Exchange;Stack Overflow f...
89184	Stack Overflow

	SOVisitFreq	SOAccount	\
ResponseId			
1		NaN	NaN
2	Daily or almost daily		Yes
3	A few times per month or weekly		Yes
4	A few times per week		Yes
5	A few times per week		No
...	
89180	Multiple times per day		Yes
89181	Multiple times per day		Yes
89182		NaN	NaN
89183	A few times per month or weekly		No
89184	A few times per week		Yes

	SOPartFreq	\
ResponseId		
1		NaN
2	A few times per month or weekly	
3	Less than once per month or monthly	
4	Less than once per month or monthly	
5		NaN
...	...	
89180	I have never participated in Q&A on Stack Over...	
89181	I have never participated in Q&A on Stack Over...	
89182		NaN
89183		NaN
89184	Less than once per month or monthly	

	SOComm	\
ResponseId		
1		NaN
2	Yes, definitely	
3	Neutral	
4	No, not really	
5	Neutral	
...	...	
89180	Neutral	
89181	No, not really	
89182		NaN
89183	Yes, somewhat	
89184	Yes, somewhat	

ResponseId	SOAI \
1	NaN
2	I don't think it's super necessary, but I thin...
3	NaN
4	I'm wearing of Stack Overflow using AI.
5	Using AI to suggest better answer to my questi...
...	...
89180	NaN
89181	I'm not sure
89182	NaN
89183	Define Parameters more detailed. I believe in ...
89184	NaN

ResponseId	AISelect	AI Sent \
1	NaN	NaN
2	Yes	Indifferent
3	No, and I don't plan to	NaN
4	No, and I don't plan to	NaN
5	Yes	Very favorable
...
89180	Yes	Very favorable
89181	Yes	Very favorable
89182	No, but I plan to soon	Very favorable
89183	Yes	Favorable
89184	Yes	Favorable

ResponseId	AI Acc \
1	NaN
2	Other (please explain)
3	NaN
4	NaN
5	Increase productivity;Greater efficiency;Speed...
...	...
89180	Increase productivity;Greater efficiency;Speed...
89181	Speed up learning
89182	NaN
89183	Increase productivity;Greater efficiency;Speed...
89184	Increase productivity;Greater efficiency;Speed...

ResponseId	AI Ben \
1	NaN
2	Somewhat distrust
3	NaN

4	NaN
5	Somewhat trust
...	...
89180	Somewhat trust
89181	Somewhat trust
89182	Highly trust
89183	Somewhat distrust
89184	Neither trust nor distrust

AIToolInterested in Using \	
ResponseId	
1	NaN
2	Learning about a codebase;Writing code;Debuggi...
3	NaN
4	NaN
5	Project planning;Testing code;Committing and r...
...	...
89180	Learning about a codebase;Project planning;Wri...
89181	Writing code;Documenting code;Testing code
89182	NaN
89183	Learning about a codebase;Project planning;Wri...
89184	Learning about a codebase;Writing code

AIToolCurrently Using \	
ResponseId	
1	NaN
2	Writing code;Committing and reviewing code
3	NaN
4	NaN
5	Learning about a codebase;Writing code;Documen...
...	...
89180	Writing code;Documenting code;Debugging and ge...
89181	Learning about a codebase;Debugging and gettin...
89182	NaN
89183	Learning about a codebase;Writing code;Debuggi...
89184	Learning about a codebase;Writing code

AIToolNot interested in Using \	
ResponseId	
1	NaN
2	NaN
3	NaN
4	NaN
5	NaN
...	...
89180	Deployment and monitoring
89181	Project planning;Committing and reviewing code...

89182		NaN
89183	Committing and reviewing code	
89184		NaN

AINextVery different \		
ResponseId		
1		NaN
2		NaN
3		NaN
4		NaN
5		NaN
...	...	
89180		NaN
89181		NaN
89182		NaN
89183		NaN
89184	Learning about a codebase	

AINextNeither different nor similar \		
ResponseId		
1		NaN
2		NaN
3		NaN
4		NaN
5		NaN
...		...
89180		NaN
89181		NaN
89182		NaN
89183	Debugging and getting help;Deployment and moni...	
89184		NaN

AINextSomewhat similar AINextVery similar \		
ResponseId		
1	NaN	NaN
2	NaN	NaN
3	NaN	NaN
4	NaN	NaN
5	NaN	NaN
...
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	NaN	NaN
89184	NaN	NaN

AINextSomewhat different TBranch \

ResponseId			
1		NaN	NaN
2		NaN	Yes
3		NaN	Yes
4		NaN	Yes
5		NaN	Yes
...	
89180	Writing code;Documenting code;Debugging and ge...		No
89181	Learning about a codebase;Debugging and gettin...		NaN
89182		NaN	NaN
89183	Learning about a codebase;Writing code		NaN
89184	Writing code		Yes

	ICorPM	WorkExp	Knowledge_1 \
ResponseId			
1	NaN	NaN	NaN
2	People manager	10.0	Strongly agree
3	Individual contributor	23.0	Strongly agree
4	Individual contributor	7.0	Strongly agree
5	Individual contributor	6.0	Agree
...
89180	NaN	NaN	NaN
89181	NaN	NaN	NaN
89182	NaN	NaN	NaN
89183	NaN	NaN	NaN
89184	People manager	14.0	Agree

	Knowledge_2	Knowledge_3 \
ResponseId		
1	NaN	NaN
2	Agree	Strongly agree
3	Neither agree nor disagree	Agree
4	Strongly disagree	Strongly agree
5	Strongly agree	Agree
...
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	NaN	NaN
89184	Neither agree nor disagree	Neither agree nor disagree

	Knowledge_4	Knowledge_5 \
ResponseId		
1	NaN	NaN
2	Agree	Agree
3	Agree	Agree
4	Strongly agree	Agree

5	Agree	Neither agree nor disagree
...
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	NaN	NaN
89184	Strongly agree	Strongly agree

ResponseId	Knowledge_6	Knowledge_7 \
1	NaN	NaN
2	Agree	Agree
3	Agree	Agree
4	Neither agree nor disagree	Agree
5	Agree	Strongly agree
...
89180	NaN	NaN
89181	NaN	NaN
89182	NaN	NaN
89183	NaN	NaN
89184	Agree	Neither agree nor disagree

ResponseId	Knowledge_8	Frequency_1	Frequency_2 \
1	NaN	NaN	NaN
2	Strongly agree	1-2 times a week	10+ times a week
3	Agree	6-10 times a week	6-10 times a week
4	Agree	1-2 times a week	10+ times a week
5	Agree	1-2 times a week	1-2 times a week
...
89180	NaN	NaN	NaN
89181	NaN	NaN	NaN
89182	NaN	NaN	NaN
89183	NaN	NaN	NaN
89184	Neither agree nor disagree	Never	1-2 times a week

ResponseId	Frequency_3	TimeSearching	TimeAnswering \
1	NaN	NaN	NaN
2	Never	15-30 minutes a day	15-30 minutes a day
3	3-5 times a week	30-60 minutes a day	30-60 minutes a day
4	1-2 times a week	15-30 minutes a day	30-60 minutes a day
5	3-5 times a week	60-120 minutes a day	30-60 minutes a day
...
89180	NaN	NaN	NaN
89181	NaN	NaN	NaN
89182	NaN	NaN	NaN

89183	NaN	NaN	NaN
89184	1-2 times a week	60-120 minutes a day	30-60 minutes a day

ProfessionalTech \

ResponseId

1	NaN
2	DevOps function;Microservices;Automated testin...
3	DevOps function;Microservices;Automated testin...
4	Automated testing;Continuous integration (CI) ...
5	Microservices;Automated testing;Observability ...
...	...
89180	NaN
89181	NaN
89182	NaN
89183	NaN
89184	DevOps function;Developer portal or other cent...

Industry \

ResponseId

1	NaN
2	Information Services, IT, Software Development...
3	Information Services, IT, Software Development...
4	NaN
5	Other
...	...
89180	NaN
89181	NaN
89182	NaN
89183	NaN
89184	Information Services, IT, Software Development...

SurveyLength

SurveyEase \

ResponseId

1	NaN	NaN
2	Appropriate in length	Easy
3	Appropriate in length	Easy
4	Appropriate in length	Easy
5	Appropriate in length	Neither easy nor difficult
...
89180	Too long	Neither easy nor difficult
89181	Too long	Easy
89182	Too long	Neither easy nor difficult
89183	Appropriate in length	Neither easy nor difficult
89184	Appropriate in length	Easy

ConvertedCompYearly

ResponseId

1	NaN
2	285000.0
3	250000.0
4	156000.0
5	23456.0
...	...
89180	NaN
89181	NaN
89182	NaN
89183	NaN
89184	NaN

[89184 rows x 83 columns]

```
[ ]: # Read the schema
survey = pd.read_csv(r"C:\Users\Dell\Downloads\stack-overflow-developer-survey-2023\survey_results_schema.csv", index_col='qname')
survey
```

```
[ ]:      qid      question \
qname
S0      QID16 <div><span style="font-size:19px;"><strong>Hel...
MetaInfo  QID12      Browser Meta Info
Q310     QID310 <div><span style="font-size:19px;"><strong>You...
Q120     QID312
S1      QID1  <span style="font-size:22px; font-family: aria...
...      ...      ...
Knowledge_7 QID289 Waiting on answers to questions often causes i...
Knowledge_8 QID289 I feel like I have the tools and/or resources ...
Frequency_1 QID290 Needing help from people outside of your immed...
Frequency_2 QID290 Interacting with people outside of your immedi...
Frequency_3 QID290 Encountering knowledge silos (where one indivi...
```

qname	force_resp	type	selector
S0	False	DB	TB
MetaInfo	False	Meta	Browser
Q310	False	DB	TB
Q120	True	MC	SAVR
S1	False	DB	TB
...
Knowledge_7	NaN	MC	MAVR
Knowledge_8	NaN	MC	MAVR
Frequency_1	NaN	MC	MAVR
Frequency_2	NaN	MC	MAVR
Frequency_3	NaN	MC	MAVR

[78 rows x 5 columns]

```
[ ]: #Find what 'Knowledge_1' signifies
survey.loc['Knowledge_1'].question
```

```
[ ]: 'I have interactions with people outside of my immediate team.'
```

```
[ ]: #Find what 'TBranch' signifies
survey.loc['TBranch'].question
```

```
[ ]: '<span style="font-size:16px;">Would you like to participate in the Professional
Developer Series? *</span>'
```

```
[ ]: #Queries to find Conditional Data
data[data['Country']=='United States of America']
```

```
[ ]:
ResponseId      Q120      MainBranch \
2      I agree      I am a developer by profession
3      I agree      I am a developer by profession
4      I agree      I am a developer by profession
7      I agree      I am a developer by profession
8      I agree      I am a developer by profession
...      ...      ...
89151      I agree      I used to be a developer by profession, but no...
89155      I agree      I am a developer by profession
89157      I agree      I am a developer by profession
89176      I agree      I am a developer by profession
89179      I agree      I am a developer by profession
```

```
ResponseId      Age      Employment \
2      25-34 years old      Employed, full-time
3      45-54 years old      Employed, full-time
4      25-34 years old      Employed, full-time
7      35-44 years old      Employed, full-time
8      25-34 years old      Employed, full-time
...      ...      ...
89151      55-64 years old      Employed, full-time
89155      35-44 years old      Employed, full-time
89157      25-34 years old      Employed, full-time
89176      25-34 years old      Employed, full-time
89179      45-54 years old      Employed, full-time
```

```
ResponseId      RemoteWork \
```


2		Remote
3	Hybrid (some remote, some in-person)	
4	Hybrid (some remote, some in-person)	
7		Remote
8		Remote
...		...
89151		Remote
89155	Hybrid (some remote, some in-person)	
89157		Remote
89176		Remote
89179		Remote

CodingActivities \

ResponseId

2	Hobby;Contribute to open-source projects;Boots...
3	Hobby;Professional development or self-paced l...
4	Hobby
7	Hobby;Contribute to open-source projects;Profe...
8	Hobby
...	...
89151	Hobby;Contribute to open-source projects
89155	I don't code outside of work
89157	Hobby;Contribute to open-source projects;Profe...
89176	I don't code outside of work
89179	Hobby

EdLevel \

ResponseId

2	Bachelor's degree (B.A., B.S., B.Eng., etc.)
3	Bachelor's degree (B.A., B.S., B.Eng., etc.)
4	Bachelor's degree (B.A., B.S., B.Eng., etc.)
7	Some college/university study without earning ...
8	Bachelor's degree (B.A., B.S., B.Eng., etc.)
...	...
89151	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89155	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89157	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89176	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89179	Bachelor's degree (B.A., B.S., B.Eng., etc.)

LearnCode \

ResponseId

2	Books / Physical media;Colleague;Friend or fam...
3	Books / Physical media;Colleague;On the job tr...
4	Colleague;Friend or family member;Other online...
7	Friend or family member;Online Courses or Cert...
8	Books / Physical media;Online Courses or Certi...

...	...
89151	Books / Physical media;Online Courses or Certi...
89155	Online Courses or Certification;On the job tra...
89157	Books / Physical media;Colleague;Online Course...
89176	Hackathons (virtual or in-person);Online Cours...
89179	Online Courses or Certification;On the job tra...

	LearnCodeOnline \
ResponseId	
2	Formal documentation provided by the owner of ...
3	Formal documentation provided by the owner of ...
4	Formal documentation provided by the owner of ...
7	NaN
8	Formal documentation provided by the owner of ...
...	...
89151	Formal documentation provided by the owner of ...
89155	Formal documentation provided by the owner of ...
89157	Formal documentation provided by the owner of ...
89176	Formal documentation provided by the owner of ...
89179	Formal documentation provided by the owner of ...

	LearnCodeCoursesCert	YearsCode	YearsCodePro	\
ResponseId				
2	Other	18	9	
3	NaN	27	23	
4	NaN	12	7	
7	Udemy	4	3	
8	Codecademy;edX	5	3	
...	
89151	Codecademy	25	8	
89155	Codecademy;edX;Pluralsight	20	8	
89157	Coursera	12	8	
89176	Codecademy;Udemy;Pluralsight;Udacity	10	8	
89179	edX;Udemy;Pluralsight;Udacity	25	22	

	DevType	OrgSize	\
ResponseId			
2	Senior Executive (C-Suite, VP, etc.)	2 to 9 employees	
3	Developer, back-end	5,000 to 9,999 employees	
4	Developer, front-end	100 to 499 employees	
7	Developer, full-stack	1,000 to 4,999 employees	
8	Developer, full-stack	10 to 19 employees	
...	
89151	Developer Experience	NaN	
89155	Developer, front-end	2 to 9 employees	
89157	Engineering manager	100 to 499 employees	
89176	Developer, mobile	10 to 19 employees	

89179 Developer, full-stack 10,000 or more employees

	PurchaseInfluence	TechList \
ResponseId		
2	I have a great deal of influence	Investigate
3	I have some influence	Given a list
4	I have some influence	Investigate
7	I have little or no influence	NaN
8	I have some influence	Investigate
...
89151	NaN	Investigate
89155	I have some influence	Investigate
89157	I have little or no influence	NaN
89176	I have some influence	Investigate
89179	I have little or no influence	NaN

	BuyNewTool \
ResponseId	
2	Start a free trial;Ask developers I know/work ...
3	Start a free trial;Ask developers I know/work ...
4	Start a free trial;Ask developers I know/work ...
7	Ask developers I know/work with;Read ratings o...
8	Start a free trial;Ask developers I know/work ...
...	...
89151	Start a free trial;Ask developers I know/work ...
89155	Start a free trial;Ask developers I know/work ...
89157	NaN
89176	Start a free trial;Ask developers I know/work ...
89179	Start a free trial;Ask developers I know/work ...

	Country	Currency	CompTotal \
ResponseId			
2	United States of America	USD\tUnited States dollar	285000.0
3	United States of America	USD\tUnited States dollar	250000.0
4	United States of America	USD\tUnited States dollar	156000.0
7	United States of America	USD\tUnited States dollar	135000.0
8	United States of America	USD\tUnited States dollar	80000.0
...
89151	United States of America	NaN	NaN
89155	United States of America	USD\tUnited States dollar	75000.0
89157	United States of America	USD\tUnited States dollar	195000.0
89176	United States of America	USD\tUnited States dollar	135000.0
89179	United States of America	USD\tUnited States dollar	212021.0

	LanguageHaveWorkedWith \
ResponseId	
2	HTML/CSS;JavaScript;Python

3		Bash/Shell (all shells);Go
4		Bash/Shell (all shells);HTML/CSS;JavaScript;PH...
7		Ada;Clojure;Elixir;Go;HTML/CSS;Java;JavaScript...
8		Go;HTML/CSS;JavaScript;Python;Rust;SQL;TypeScript
...		...
89151		SQL
89155		HTML/CSS;JavaScript;PHP;TypeScript;Visual Basi...
89157		Bash/Shell (all shells);C;C++;JavaScript;Julia
89176		Java;Kotlin
89179		JavaScript;TypeScript

LanguageWantToWorkWith \

ResponseId

2		Bash/Shell (all shells);C#;Dart;Elixir;GDScrip...
3		Haskell;OCaml;Rust
4		Bash/Shell (all shells);HTML/CSS;JavaScript;Ru...
7		NaN
8		Elixir;Go;Julia;Python;R;Rust;Scala;SQL;TypeSc...
...		...
89151		HTML/CSS;JavaScript;Ruby
89155		HTML/CSS;JavaScript;TypeScript
89157		Julia;Zig
89176		Dart;Java;JavaScript;Kotlin
89179		Go;JavaScript;Python;TypeScript

DatabaseHaveWorkedWith \

ResponseId

2		Supabase
3		NaN
4		PostgreSQL;Redis
7		MariaDB;Microsoft SQL Server;MySQL;PostgreSQL;...
8		Dynamodb;MongoDB;MySQL;Redis;SQLite
...		...
89151		PostgreSQL
89155		NaN
89157		Cosmos DB;PostgreSQL
89176		H2;MongoDB;MySQL;SQLite
89179		Dynamodb

DatabaseWantToWorkWith \

ResponseId

2		Firebase Realtime Database;Supabase
3		NaN
4		PostgreSQL;Redis
7		Datomic
8		BigQuery;Cockroachdb;DuckDB;Elasticsearch;Mong...
...		...

89151	PostgreSQL
89155	NaN
89157	Cockroachdb;DuckDB;Snowflake
89176	MySQL;SQLite
89179	Dynamodb

PlatformHaveWorkedWith \

ResponseId

2	Amazon Web Services (AWS);Netlify;Vercel
3	Amazon Web Services (AWS);Google Cloud;OpenSta...
4	Cloudflare;Heroku
7	Amazon Web Services (AWS);Digital Ocean
8	Amazon Web Services (AWS);Fly.io;Netlify;Vercel
...	...
89151	NaN
89155	Netlify
89157	Amazon Web Services (AWS);Hetzner;Microsoft Azure
89176	VMware
89179	Amazon Web Services (AWS)

PlatformWantToWorkWith \

ResponseId

2	Fly.io;Netlify;Render
3	NaN
4	Cloudflare;Heroku
7	Vercel
8	Amazon Web Services (AWS);Digital Ocean;Fly.io...
...	...
89151	NaN
89155	Netlify
89157	Amazon Web Services (AWS)
89176	NaN
89179	Amazon Web Services (AWS)

WebframeHaveWorkedWith \

ResponseId

2	Next.js;React;Remix;Vue.js
3	NaN
4	Node.js;React;Ruby on Rails;Vue.js;WordPress
7	AngularJS;jQuery;Node.js;Phoenix;Ruby on Rails...
8	Angular;Express;Next.js;Node.js;React
...	...
89151	NaN
89155	Next.js;React;WordPress
89157	jQuery;Node.js
89176	Spring Boot
89179	Express;Node.js;Spring Boot

	WebframeWantToWorkWith \
ResponseId	
2	Deno;Elm;Nuxt.js;React;Svelte;Vue.js
3	NaN
4	Node.js;Ruby on Rails;Vue.js
7	NaN
8	Deno;FastAPI;Fastify;Flask;NestJS;Next.js;Node...
...	...
89151	NaN
89155	React
89157	NaN
89176	NaN
89179	Node.js

	MiscTechHaveWorkedWith \
ResponseId	
2	Electron;React Native;Tauri
3	NaN
4	NaN
7	RabbitMQ;Spring Framework
8	NumPy;Pandas;Scikit-Learn;Tauri;TensorFlow
...	...
89151	Hadoop
89155	NaN
89157	NaN
89176	Opencv;OpenGL;Spring Framework
89179	Apache Kafka

	MiscTechWantToWorkWith \
ResponseId	
2	Capacitor;Electron;Tauri;Uno Platform;Xamarin
3	NaN
4	NaN
7	NaN
8	.NET MAUI;Apache Kafka;Apache Spark;Hugging Fa...
...	...
89151	NaN
89155	NaN
89157	NaN
89176	Xamarin
89179	NaN

	ToolsTechHaveWorkedWith \
ResponseId	
2	Docker;Kubernetes;npm;Pip;Vite;Webpack;Yarn
3	Cargo;Docker;Kubernetes;Make;Nix

4	Homebrew;npm;Vite;Webpack;Yarn
7	Bun;Cargo;Chocolatey;Docker;Homebrew;Kubernete...
8	Ansible;Cargo;Docker;Homebrew;Make;npm;Pip;pnp...
...	...
89151	Chocolatey;Docker;Homebrew;npm
89155	Docker;npm;Webpack;Yarn
89157	NaN
89176	Docker;Gradle;Maven (build tool)
89179	Docker;Homebrew;Yarn

ToolsTechWantToWorkWith \

ResponseId

2	Godot;npm;pnpm;Unity 3D;Unreal Engine;Vite;Web...
3	Cargo;Kubernetes;Nix
4	Homebrew;npm;Vite
7	NaN
8	Cargo;Dagger;Docker;Homebrew;Kubernetes;Make;n...
...	...
89151	Docker;Homebrew;Kubernetes
89155	npm;Webpack;Yarn
89157	NaN
89176	Gradle
89179	Docker;Godot;Homebrew;Vite;Yarn

NEWCollabToolsHaveWorkedWith \

ResponseId

2	Vim;Visual Studio Code
3	Emacs;Helix
4	IntelliJ IDEA;Vim;Visual Studio Code;WebStorm
7	Emacs;IntelliJ IDEA;RubyMine;Visual Studio Cod...
8	DataGrip;IPython;Neovim;Vim;Visual Studio Code
...	...
89151	Emacs;Visual Studio Code
89155	Visual Studio;Visual Studio Code
89157	Vim;Visual Studio Code
89176	Android Studio;Atom;Eclipse;IntelliJ IDEA;Netb...
89179	IntelliJ IDEA;Nano;Visual Studio Code

NEWCollabToolsWantToWorkWith \

ResponseId

2	Vim;Visual Studio Code
3	Emacs;Helix
4	IntelliJ IDEA;Vim;WebStorm
7	NaN
8	IPython;Neovim;RStudio;Visual Studio Code
...	...
89151	Emacs;Visual Studio Code

89155	Visual Studio Code
89157	Vim;Visual Studio Code
89176	Android Studio;IntelliJ IDEA;Notepad++
89179	Visual Studio Code

OpSysPersonal use \

ResponseId

2	iOS;iPadOS;MacOS;Windows;Windows Subsystem for...
3	MacOS;Other Linux-based
4	iOS;iPadOS;MacOS
7	MacOS;Windows
8	MacOS;Ubuntu;Windows
...	...
89151	MacOS
89155	MacOS;Windows
89157	MacOS
89176	Android;ChromeOS;iOS;iPadOS;Other Linux-based;...
89179	MacOS

OpSysProfessional use \

ResponseId

2	MacOS;Windows;Windows Subsystem for Linux (WSL)
3	MacOS;Other Linux-based
4	iOS;iPadOS;MacOS
7	MacOS
8	MacOS;Ubuntu;Windows
...	...
89151	Cygwin;Windows;Windows Subsystem for Linux (WSL)
89155	Windows
89157	MacOS
89176	Android;Other Linux-based;Windows;Windows Subs...
89179	MacOS;Ubuntu

OfficeStackAsyncHaveWorkedWith \

ResponseId

2	Asana;Basecamp;GitHub Discussions;Jira;Linear;...
3	Markdown File;Stack Overflow for Teams
4	Jira
7	Jira
8	Markdown File;Notion
...	...
89151	Confluence;Doxygen;GitHub Discussions;Jira;Mir...
89155	Basecamp;GitHub Discussions
89157	Jira
89176	Jira
89179	Confluence;Jira;Markdown File;Stack Overflow f...

	OfficeStackAsyncWantToWorkWith \
ResponseId	
2	GitHub Discussions;Linear;Notion;Trello
3	Markdown File
4	Jira
7	NaN
8	Markdown File;Notion
...	...
89151	Confluence;Doxygen;GitHub Discussions;Jira;Wikis
89155	GitHub Discussions
89157	Airtable
89176	Jira;Trello;YouTrack
89179	GitHub Discussions;Stack Overflow for Teams

	OfficeStackSyncHaveWorkedWith \
ResponseId	
2	Cisco Webex Teams;Discord;Google Chat;Google M...
3	Microsoft Teams;Slack;Zoom
4	Discord;Google Meet;Microsoft Teams;Slack;Zoom
7	Slack
8	Microsoft Teams
...	...
89151	Discord;Microsoft Teams;Zoom
89155	Jitsi;Slack
89157	Google Meet;Slack;Zoom
89176	Cisco Webex Teams;Discord;Microsoft Teams;Zoom
89179	Microsoft Teams;Slack;Zoom

	OfficeStackSyncWantToWorkWith \
ResponseId	
2	Discord;Signal;Slack;Zoom
3	Slack;Zoom
4	Discord;Google Meet;Slack;Zoom
7	NaN
8	Discord
...	...
89151	Discord;Microsoft Teams
89155	Jitsi;Slack
89157	Slack;Zoom
89176	Cisco Webex Teams;Discord;Microsoft Teams;Slack
89179	Slack

	AI SearchHaveWorkedWith	AI SearchWantToWorkWith \
ResponseId		
2	ChatGPT	ChatGPT;Neeva AI
3	NaN	NaN
4	NaN	NaN

7		ChatGPT		NaN
8	Bing AI;ChatGPT;Google	Bard AI	ChatGPT;Neeva AI;Perplexity AI	
...	
89151		NaN		NaN
89155	ChatGPT;Google	Bard AI	ChatGPT;Google	Bard AI
89157		ChatGPT		ChatGPT
89176	ChatGPT;Google	Bard AI	ChatGPT;Google	Bard AI
89179		NaN		NaN

	AIDevHaveWorkedWith		AIDevWantToWorkWith	\
ResponseId				
2	GitHub Copilot		GitHub Copilot	
3	NaN		NaN	
4	NaN		NaN	
7	GitHub Copilot		NaN	
8	GitHub Copilot		GitHub Copilot	
...	
89151	NaN		NaN	
89155	GitHub Copilot		NaN	
89157	GitHub Copilot	GitHub Copilot;Replit	Ghostwriter	
89176	NaN		NaN	
89179	NaN		NaN	

	NEWSOSites	\
ResponseId		
2	Stack Overflow;Stack Exchange	
3	Stack Overflow;Stack Exchange;Stack Overflow f...	
4	Stack Overflow;Stack Exchange	
7	Stack Overflow	
8	Stack Overflow;Stack Exchange;Collectives on S...	
...	...	
89151	Stack Overflow;Stack Exchange;Stack Overflow f...	
89155	Stack Overflow;Stack Exchange	
89157	Stack Overflow;Stack Exchange	
89176	Stack Overflow;Stack Exchange	
89179	Stack Overflow;Stack Exchange;Stack Overflow f...	

	SOVisitFreq	SOAccount	\
ResponseId			
2	Daily or almost daily	Yes	
3	A few times per month or weekly	Yes	
4	A few times per week	Yes	
7	A few times per month or weekly	Yes	
8	Daily or almost daily	Yes	
...	
89151	A few times per month or weekly	Yes	
89155	A few times per month or weekly	Yes	

89157	Less than once per month or monthly	Yes
89176	Multiple times per day	Not sure/can't remember
89179	Daily or almost daily	Yes

ResponseId	SOPartFreq	SOCComm \
2	A few times per month or weekly	Yes, definitely
3	Less than once per month or monthly	Neutral
4	Less than once per month or monthly	No, not really
7	Less than once per month or monthly	Neutral
8	A few times per month or weekly	Yes, somewhat
...
89151	Less than once per month or monthly	No, not at all
89155	Less than once per month or monthly	No, not at all
89157	Less than once per month or monthly	No, not really
89176	NaN	No, not really
89179	A few times per month or weekly	No, not really

ResponseId	SOAI \
2	I don't think it's super necessary, but I thin...
3	NaN
4	I'm wearing of Stack Overflow using AI.
7	Neutral
8	NaN
...	...
89151	Generally negative. Doing a better job of find...
89155	I think AI could help improve the quality of p...
89157	Sounds generally helpful, yes. It could also d...
89176	I think there is value in incorporating AI to ...
89179	Improve question writing

ResponseId	AISelect	AISelect \
2	Yes	Indifferent
3	No, and I don't plan to	NaN
4	No, and I don't plan to	NaN
7	Yes	Unfavorable
8	Yes	Favorable
...
89151	No, and I don't plan to	NaN
89155	No, but I plan to soon	Favorable
89157	Yes	Favorable
89176	Yes	Favorable
89179	No, but I plan to soon	Favorable

AIAcc \

ResponseId	
2	Other (please explain)
3	NaN
4	NaN
7	Improve accuracy in coding
8	Increase productivity;Speed up learning
...	...
89151	NaN
89155	NaN
89157	Increase productivity;Improve collaboration
89176	Increase productivity;Greater efficiency;Speed...
89179	NaN

	AIBen \
ResponseId	
2	Somewhat distrust
3	NaN
4	NaN
7	Somewhat distrust
8	Somewhat distrust
...	...
89151	NaN
89155	Somewhat distrust
89157	Somewhat distrust
89176	Somewhat trust
89179	Somewhat distrust

	AIToolInterested in Using \
ResponseId	
2	Learning about a codebase;Writing code;Debuggi...
3	NaN
4	NaN
7	NaN
8	Project planning;Writing code;Documenting code...
...	...
89151	NaN
89155	NaN
89157	Learning about a codebase;Debugging and gettin...
89176	Learning about a codebase;Documenting code;Deb...
89179	NaN

	AIToolCurrently Using \
ResponseId	
2	Writing code;Committing and reviewing code
3	NaN
4	NaN
7	Writing code;Debugging and getting help

8	Project planning;Writing code;Debugging and ge...	
...		...
89151		NaN
89155		NaN
89157	Writing code;Documenting code	
89176	Writing code;Testing code	
89179		NaN

AIToolNot interested in Using \

ResponseId		
2		NaN
3		NaN
4		NaN
7	Learning about a codebase;Project planning;Wri...	
8		NaN
...		...
89151		NaN
89155		NaN
89157	Project planning;Committing and reviewing code...	
89176	Project planning;Committing and reviewing code...	
89179		NaN

AINextVery different AINextNeither different nor similar \

ResponseId			
2		NaN	NaN
3		NaN	NaN
4		NaN	NaN
7		NaN	NaN
8		NaN	NaN
...
89151		NaN	NaN
89155		NaN	NaN
89157		NaN	NaN
89176	Writing code;Testing code		NaN
89179		NaN	NaN

AINextSomewhat similar AINextVery similar \

ResponseId		
2	NaN	NaN
3	NaN	NaN
4	NaN	NaN
7	NaN	NaN
8	NaN	NaN
...
89151	NaN	NaN
89155	NaN	NaN
89157	NaN	NaN

89176	NaN	NaN
89179	NaN	NaN

	AINextSomewhat	different	TBranch	ICorPM	\
ResponseId					
2			NaN	Yes	People manager
3			NaN	Yes	Individual contributor
4			NaN	Yes	Individual contributor
7			NaN	Yes	Individual contributor
8			NaN	Yes	NaN
...		
89151			NaN	Yes	Individual contributor
89155			NaN	Yes	Individual contributor
89157	Writing code;	Documenting	code	Yes	People manager
89176			NaN	Yes	Individual contributor
89179			NaN	Yes	Individual contributor

	WorkExp	Knowledge_1	Knowledge_2	\
ResponseId				
2	10.0	Strongly agree		Agree
3	23.0	Strongly agree	Neither agree nor disagree	
4	7.0	Strongly agree		Strongly disagree
7	4.0	Strongly agree		Agree
8	5.0	NaN		NaN
...
89151	30.0	Strongly agree		Agree
89155	8.0	Agree		Strongly disagree
89157	8.0	Strongly agree		Agree
89176	8.0	Agree	Neither agree nor disagree	
89179	22.0	Strongly agree	Neither agree nor disagree	

	Knowledge_3	Knowledge_4	\
ResponseId			
2	Strongly agree		Agree
3	Agree		Agree
4	Strongly agree		Strongly agree
7	Neither agree nor disagree	Neither agree nor disagree	
8	NaN		NaN
...
89151	Neither agree nor disagree		Agree
89155	Agree		Disagree
89157	Agree		Agree
89176	Neither agree nor disagree		Strongly agree
89179	Disagree	Neither agree nor disagree	

	Knowledge_5	Knowledge_6	\
ResponseId			

2	Agree	Agree
3	Agree	Agree
4	Agree	Neither agree nor disagree
7	Agree	Agree
8	NaN	NaN
...
89151	Agree	Disagree
89155	Agree	Agree
89157	Agree	Strongly agree
89176	Strongly agree	Neither agree nor disagree
89179	Agree	Agree

	Knowledge_7	Knowledge_8 \
ResponseId		
2	Agree	Strongly agree
3	Agree	Agree
4	Agree	Agree
7	Agree	Neither agree nor disagree
8	NaN	NaN
...
89151	Disagree	Neither agree nor disagree
89155	Strongly agree	Disagree
89157	Neither agree nor disagree	Neither agree nor disagree
89176	Agree	Agree
89179	Strongly agree	Neither agree nor disagree

	Frequency_1	Frequency_2	Frequency_3 \
ResponseId			
2	1-2 times a week	10+ times a week	Never
3	6-10 times a week	6-10 times a week	3-5 times a week
4	1-2 times a week	10+ times a week	1-2 times a week
7	1-2 times a week	3-5 times a week	1-2 times a week
8	NaN	NaN	NaN
...
89151	1-2 times a week	6-10 times a week	1-2 times a week
89155	Never	1-2 times a week	1-2 times a week
89157	1-2 times a week	10+ times a week	3-5 times a week
89176	1-2 times a week	3-5 times a week	Never
89179	1-2 times a week	1-2 times a week	1-2 times a week

	TimeSearching	TimeAnswering \
ResponseId		
2	15-30 minutes a day	15-30 minutes a day
3	30-60 minutes a day	30-60 minutes a day
4	15-30 minutes a day	30-60 minutes a day
7	Less than 15 minutes a day	15-30 minutes a day
8	60-120 minutes a day	30-60 minutes a day

...
89151	Less than 15 minutes a day	Less than 15 minutes a day
89155	30-60 minutes a day	30-60 minutes a day
89157	30-60 minutes a day	Over 120 minutes a day
89176	60-120 minutes a day	30-60 minutes a day
89179	15-30 minutes a day	60-120 minutes a day

ProfessionalTech \

ResponseId

2	DevOps function;Microservices;Automated testin...
3	DevOps function;Microservices;Automated testin...
4	Automated testing;Continuous integration (CI) ...
7	Microservices;Automated testing;Continuous int...
8	None of these
...	...
89151	DevOps function;Automated testing;Developer po...
89155	Developer portal or other central places to fi...
89157	Automated testing;Observability tools;Continuo...
89176	DevOps function;Continuous integration (CI) an...
89179	DevOps function;Microservices;Automated testin...

Industry \

ResponseId

2	Information Services, IT, Software Development...
3	Information Services, IT, Software Development...
4	NaN
7	Information Services, IT, Software Development...
8	Financial Services
...	...
89151	Information Services, IT, Software Development...
89155	Information Services, IT, Software Development...
89157	Information Services, IT, Software Development...
89176	Information Services, IT, Software Development...
89179	Insurance

SurveyLength

SurveyEase \

ResponseId

2	Appropriate in length	Easy
3	Appropriate in length	Easy
4	Appropriate in length	Easy
7	Appropriate in length	Easy
8	NaN	NaN
...
89151	Too short	Easy
89155	Appropriate in length	Easy
89157	Appropriate in length	Neither easy nor difficult
89176	Appropriate in length	Neither easy nor difficult

89179 45-54 years old Employed, full-time

RemoteWork \

ResponseId

2	Remote
3	Hybrid (some remote, some in-person)
4	Hybrid (some remote, some in-person)
7	Remote
8	Remote
...	...
89151	Remote
89155	Hybrid (some remote, some in-person)
89157	Remote
89176	Remote
89179	Remote

CodingActivities \

ResponseId

2	Hobby;Contribute to open-source projects;Boots...
3	Hobby;Professional development or self-paced l...
4	Hobby
7	Hobby;Contribute to open-source projects;Profe...
8	Hobby
...	...
89151	Hobby;Contribute to open-source projects
89155	I don't code outside of work
89157	Hobby;Contribute to open-source projects;Profe...
89176	I don't code outside of work
89179	Hobby

EdLevel \

ResponseId

2	Bachelor's degree (B.A., B.S., B.Eng., etc.)
3	Bachelor's degree (B.A., B.S., B.Eng., etc.)
4	Bachelor's degree (B.A., B.S., B.Eng., etc.)
7	Some college/university study without earning ...
8	Bachelor's degree (B.A., B.S., B.Eng., etc.)
...	...
89151	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89155	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89157	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89176	Bachelor's degree (B.A., B.S., B.Eng., etc.)
89179	Bachelor's degree (B.A., B.S., B.Eng., etc.)

LearnCode \

ResponseId

2	Books / Physical media;Colleague;Friend or fam...
---	---

3	Books / Physical media;Colleague;On the job tr...
4	Colleague;Friend or family member;Other online...
7	Friend or family member;Online Courses or Cert...
8	Books / Physical media;Online Courses or Certi...
...	...
89151	Books / Physical media;Online Courses or Certi...
89155	Online Courses or Certification;On the job tra...
89157	Books / Physical media;Colleague;Online Course...
89176	Hackathons (virtual or in-person);Online Cours...
89179	Online Courses or Certification;On the job tra...

LearnCodeOnline \

ResponseId

2	Formal documentation provided by the owner of ...
3	Formal documentation provided by the owner of ...
4	Formal documentation provided by the owner of ...
7	NaN
8	Formal documentation provided by the owner of ...
...	...
89151	Formal documentation provided by the owner of ...
89155	Formal documentation provided by the owner of ...
89157	Formal documentation provided by the owner of ...
89176	Formal documentation provided by the owner of ...
89179	Formal documentation provided by the owner of ...

LearnCodeCoursesCert YearsCode YearsCodePro \

ResponseId

2	Other	18	9
3	NaN	27	23
4	NaN	12	7
7	Udemy	4	3
8	Codecademy;edX	5	3
...
89151	Codecademy	25	8
89155	Codecademy;edX;Pluralsight	20	8
89157	Coursera	12	8
89176	Codecademy;Udemy;Pluralsight;Udacity	10	8
89179	edX;Udemy;Pluralsight;Udacity	25	22

DevType OrgSize \

ResponseId

2	Senior Executive (C-Suite, VP, etc.)	2 to 9 employees
3	Developer, back-end	5,000 to 9,999 employees
4	Developer, front-end	100 to 499 employees
7	Developer, full-stack	1,000 to 4,999 employees
8	Developer, full-stack	10 to 19 employees
...

89151	Developer Experience	NaN
89155	Developer, front-end	2 to 9 employees
89157	Engineering manager	100 to 499 employees
89176	Developer, mobile	10 to 19 employees
89179	Developer, full-stack	10,000 or more employees

	PurchaseInfluence	TechList \
ResponseId		
2	I have a great deal of influence	Investigate
3	I have some influence	Given a list
4	I have some influence	Investigate
7	I have little or no influence	NaN
8	I have some influence	Investigate
...
89151	NaN	Investigate
89155	I have some influence	Investigate
89157	I have little or no influence	NaN
89176	I have some influence	Investigate
89179	I have little or no influence	NaN

	BuyNewTool \
ResponseId	
2	Start a free trial;Ask developers I know/work ...
3	Start a free trial;Ask developers I know/work ...
4	Start a free trial;Ask developers I know/work ...
7	Ask developers I know/work with;Read ratings o...
8	Start a free trial;Ask developers I know/work ...
...	...
89151	Start a free trial;Ask developers I know/work ...
89155	Start a free trial;Ask developers I know/work ...
89157	NaN
89176	Start a free trial;Ask developers I know/work ...
89179	Start a free trial;Ask developers I know/work ...

	Country	Currency	CompTotal \
ResponseId			
2	United States of America	USD\tUnited States dollar	285000.0
3	United States of America	USD\tUnited States dollar	250000.0
4	United States of America	USD\tUnited States dollar	156000.0
7	United States of America	USD\tUnited States dollar	135000.0
8	United States of America	USD\tUnited States dollar	80000.0
...
89151	United States of America	NaN	NaN
89155	United States of America	USD\tUnited States dollar	75000.0
89157	United States of America	USD\tUnited States dollar	195000.0
89176	United States of America	USD\tUnited States dollar	135000.0
89179	United States of America	USD\tUnited States dollar	212021.0

	LanguageHaveWorkedWith \
ResponseId	
2	HTML/CSS;JavaScript;Python
3	Bash/Shell (all shells);Go
4	Bash/Shell (all shells);HTML/CSS;JavaScript;PH...
7	Ada;Clojure;Elixir;Go;HTML/CSS;Java;JavaScript...
8	Go;HTML/CSS;JavaScript;Python;Rust;SQL;TypeScript
...	...
89151	SQL
89155	HTML/CSS;JavaScript;PHP;TypeScript;Visual Basi...
89157	Bash/Shell (all shells);C;C++;JavaScript;Julia
89176	Java;Kotlin
89179	JavaScript;TypeScript

	LanguageWantToWorkWith \
ResponseId	
2	Bash/Shell (all shells);C#;Dart;Elixir;GDScrip...
3	Haskell;OCaml;Rust
4	Bash/Shell (all shells);HTML/CSS;JavaScript;Ru...
7	NaN
8	Elixir;Go;Julia;Python;R;Rust;Scala;SQL;TypeSc...
...	...
89151	HTML/CSS;JavaScript;Ruby
89155	HTML/CSS;JavaScript;TypeScript
89157	Julia;Zig
89176	Dart;Java;JavaScript;Kotlin
89179	Go;JavaScript;Python;TypeScript

	DatabaseHaveWorkedWith \
ResponseId	
2	Supabase
3	NaN
4	PostgreSQL;Redis
7	MariaDB;Microsoft SQL Server;MySQL;PostgreSQL;...
8	Dynamodb;MongoDB;MySQL;Redis;SQLite
...	...
89151	PostgreSQL
89155	NaN
89157	Cosmos DB;PostgreSQL
89176	H2;MongoDB;MySQL;SQLite
89179	Dynamodb

	DatabaseWantToWorkWith \
ResponseId	
2	Firebase Realtime Database;Supabase
3	NaN

4	PostgreSQL;Redis
7	Datomic
8	BigQuery;Cockroachdb;DuckDB;Elasticsearch;Mong...
...	...
89151	PostgreSQL
89155	NaN
89157	Cockroachdb;DuckDB;Snowflake
89176	MySQL;SQLite
89179	Dynamodb

	PlatformHaveWorkedWith \
ResponseId	
2	Amazon Web Services (AWS);Netlify;Vercel
3	Amazon Web Services (AWS);Google Cloud;OpenSta...
4	Cloudflare;Heroku
7	Amazon Web Services (AWS);Digital Ocean
8	Amazon Web Services (AWS);Fly.io;Netlify;Vercel
...	...
89151	NaN
89155	Netlify
89157	Amazon Web Services (AWS);Hetzner;Microsoft Azure
89176	VMware
89179	Amazon Web Services (AWS)

	PlatformWantToWorkWith \
ResponseId	
2	Fly.io;Netlify;Render
3	NaN
4	Cloudflare;Heroku
7	Vercel
8	Amazon Web Services (AWS);Digital Ocean;Fly.io...
...	...
89151	NaN
89155	Netlify
89157	Amazon Web Services (AWS)
89176	NaN
89179	Amazon Web Services (AWS)

	WebframeHaveWorkedWith \
ResponseId	
2	Next.js;React;Remix;Vue.js
3	NaN
4	Node.js;React;Ruby on Rails;Vue.js;WordPress
7	AngularJS;jQuery;Node.js;Phoenix;Ruby on Rails...
8	Angular;Express;Next.js;Node.js;React
...	...
89151	NaN

89155	Next.js;React;WordPress
89157	jQuery;Node.js
89176	Spring Boot
89179	Express;Node.js;Spring Boot
	WebframeWantToWorkWith \
ResponseId	
2	Deno;Elm;Nuxt.js;React;Svelte;Vue.js
3	NaN
4	Node.js;Ruby on Rails;Vue.js
7	NaN
8	Deno;FastAPI;Fastify;Flask;NestJS;Next.js;Node...
...	...
89151	NaN
89155	React
89157	NaN
89176	NaN
89179	Node.js
	MiscTechHaveWorkedWith \
ResponseId	
2	Electron;React Native;Tauri
3	NaN
4	NaN
7	RabbitMQ;Spring Framework
8	NumPy;Pandas;Scikit-Learn;Tauri;TensorFlow
...	...
89151	Hadoop
89155	NaN
89157	NaN
89176	Opencv;OpenGL;Spring Framework
89179	Apache Kafka
	MiscTechWantToWorkWith \
ResponseId	
2	Capacitor;Electron;Tauri;Uno Platform;Xamarin
3	NaN
4	NaN
7	NaN
8	.NET MAUI;Apache Kafka;Apache Spark;Hugging Fa...
...	...
89151	NaN
89155	NaN
89157	NaN
89176	Xamarin
89179	NaN

	ToolsTechHaveWorkedWith \
ResponseId	
2	Docker;Kubernetes;npm;Pip;Vite;Webpack;Yarn
3	Cargo;Docker;Kubernetes;Make;Nix
4	Homebrew;npm;Vite;Webpack;Yarn
7	Bun;Cargo;Chocolatey;Docker;Homebrew;Kubernete...
8	Ansible;Cargo;Docker;Homebrew;Make;npm;Pip;pnpm...
...	...
89151	Chocolatey;Docker;Homebrew;npm
89155	Docker;npm;Webpack;Yarn
89157	NaN
89176	Docker;Gradle;Maven (build tool)
89179	Docker;Homebrew;Yarn

	ToolsTechWantToWorkWith \
ResponseId	
2	Godot;npm;pnpm;Unity 3D;Unreal Engine;Vite;Web...
3	Cargo;Kubernetes;Nix
4	Homebrew;npm;Vite
7	NaN
8	Cargo;Dagger;Docker;Homebrew;Kubernetes;Make;n...
...	...
89151	Docker;Homebrew;Kubernetes
89155	npm;Webpack;Yarn
89157	NaN
89176	Gradle
89179	Docker;Godot;Homebrew;Vite;Yarn

	NEWCollabToolsHaveWorkedWith \
ResponseId	
2	Vim;Visual Studio Code
3	Emacs;Helix
4	IntelliJ IDEA;Vim;Visual Studio Code;WebStorm
7	Emacs;IntelliJ IDEA;RubyMine;Visual Studio Cod...
8	DataGrip;IPython;Neovim;Vim;Visual Studio Code
...	...
89151	Emacs;Visual Studio Code
89155	Visual Studio;Visual Studio Code
89157	Vim;Visual Studio Code
89176	Android Studio;Atom;Eclipse;IntelliJ IDEA;Netb...
89179	IntelliJ IDEA;Nano;Visual Studio Code

	NEWCollabToolsWantToWorkWith \
ResponseId	
2	Vim;Visual Studio Code
3	Emacs;Helix
4	IntelliJ IDEA;Vim;WebStorm

7		NaN
8	IPython;Neovim;RStudio;Visual Studio Code	
...		...
89151	Emacs;Visual Studio Code	
89155	Visual Studio Code	
89157	Vim;Visual Studio Code	
89176	Android Studio;IntelliJ IDEA;Notepad++	
89179	Visual Studio Code	

		OpSysPersonal use \
ResponseId		
2	iOS;iPadOS;MacOS;Windows;Windows Subsystem for...	
3	MacOS;Other Linux-based	
4	iOS;iPadOS;MacOS	
7	MacOS;Windows	
8	MacOS;Ubuntu;Windows	
...		...
89151	MacOS	
89155	MacOS;Windows	
89157	MacOS	
89176	Android;ChromeOS;iOS;iPadOS;Other Linux-based;...	
89179	MacOS	

		OpSysProfessional use \
ResponseId		
2	MacOS;Windows;Windows Subsystem for Linux (WSL)	
3	MacOS;Other Linux-based	
4	iOS;iPadOS;MacOS	
7	MacOS	
8	MacOS;Ubuntu;Windows	
...		...
89151	Cygwin;Windows;Windows Subsystem for Linux (WSL)	
89155	Windows	
89157	MacOS	
89176	Android;Other Linux-based;Windows;Windows Subs...	
89179	MacOS;Ubuntu	

		OfficeStackAsyncHaveWorkedWith \
ResponseId		
2	Asana;Basecamp;GitHub Discussions;Jira;Linear;...	
3	Markdown File;Stack Overflow for Teams	
4	Jira	
7	Jira	
8	Markdown File;Notion	
...		...
89151	Confluence;Doxygen;GitHub Discussions;Jira;Mir...	
89155	Basecamp;GitHub Discussions	

89157	Jira
89176	Jira
89179	Confluence;Jira;Markdown File;Stack Overflow f...

OfficeStackAsyncWantToWorkWith \

ResponseId

2	GitHub Discussions;Linear;Notion;Trello
3	Markdown File
4	Jira
7	NaN
8	Markdown File;Notion
...	...
89151	Confluence;Doxygen;GitHub Discussions;Jira;Wikis
89155	GitHub Discussions
89157	Airtable
89176	Jira;Trello;YouTrack
89179	GitHub Discussions;Stack Overflow for Teams

OfficeStackSyncHaveWorkedWith \

ResponseId

2	Cisco Webex Teams;Discord;Google Chat;Google M...
3	Microsoft Teams;Slack;Zoom
4	Discord;Google Meet;Microsoft Teams;Slack;Zoom
7	Slack
8	Microsoft Teams
...	...
89151	Discord;Microsoft Teams;Zoom
89155	Jitsi;Slack
89157	Google Meet;Slack;Zoom
89176	Cisco Webex Teams;Discord;Microsoft Teams;Zoom
89179	Microsoft Teams;Slack;Zoom

OfficeStackSyncWantToWorkWith \

ResponseId

2	Discord;Signal;Slack;Zoom
3	Slack;Zoom
4	Discord;Google Meet;Slack;Zoom
7	NaN
8	Discord
...	...
89151	Discord;Microsoft Teams
89155	Jitsi;Slack
89157	Slack;Zoom
89176	Cisco Webex Teams;Discord;Microsoft Teams;Slack
89179	Slack

AISeachHaveWorkedWith

AISeachWantToWorkWith \

ResponseId			
2		ChatGPT	ChatGPT;Neeva AI
3		NaN	NaN
4		NaN	NaN
7		ChatGPT	NaN
8	Bing AI;ChatGPT;Google Bard AI	ChatGPT;Neeva AI;Perplexity AI	
...	
89151		NaN	NaN
89155	ChatGPT;Google Bard AI	ChatGPT;Google Bard AI	
89157	ChatGPT	ChatGPT	
89176	ChatGPT;Google Bard AI	ChatGPT;Google Bard AI	
89179		NaN	NaN

	AIDevHaveWorkedWith	AIDevWantToWorkWith \
ResponseId		
2	GitHub Copilot	GitHub Copilot
3	NaN	NaN
4	NaN	NaN
7	GitHub Copilot	NaN
8	GitHub Copilot	GitHub Copilot
...
89151	NaN	NaN
89155	GitHub Copilot	NaN
89157	GitHub Copilot	GitHub Copilot;Replit Ghostwriter
89176	NaN	NaN
89179	NaN	NaN

	NEWSOSites \
ResponseId	
2	Stack Overflow;Stack Exchange
3	Stack Overflow;Stack Exchange;Stack Overflow f...
4	Stack Overflow;Stack Exchange
7	Stack Overflow
8	Stack Overflow;Stack Exchange;Collectives on S...
...	...
89151	Stack Overflow;Stack Exchange;Stack Overflow f...
89155	Stack Overflow;Stack Exchange
89157	Stack Overflow;Stack Exchange
89176	Stack Overflow;Stack Exchange
89179	Stack Overflow;Stack Exchange;Stack Overflow f...

	SOVisitFreq	SOAccount \
ResponseId		
2	Daily or almost daily	Yes
3	A few times per month or weekly	Yes
4	A few times per week	Yes
7	A few times per month or weekly	Yes

8	Daily or almost daily	Yes
...
89151	A few times per month or weekly	Yes
89155	A few times per month or weekly	Yes
89157	Less than once per month or monthly	Yes
89176	Multiple times per day	Not sure/can't remember
89179	Daily or almost daily	Yes

ResponseId	SOPartFreq	SOCComm \
2	A few times per month or weekly	Yes, definitely
3	Less than once per month or monthly	Neutral
4	Less than once per month or monthly	No, not really
7	Less than once per month or monthly	Neutral
8	A few times per month or weekly	Yes, somewhat
...
89151	Less than once per month or monthly	No, not at all
89155	Less than once per month or monthly	No, not at all
89157	Less than once per month or monthly	No, not really
89176	NaN	No, not really
89179	A few times per month or weekly	No, not really

ResponseId	SOAI \
2	I don't think it's super necessary, but I thin...
3	NaN
4	I'm wearing of Stack Overflow using AI.
7	Neutral
8	NaN
...	...
89151	Generally negative. Doing a better job of find...
89155	I think AI could help improve the quality of p...
89157	Sounds generally helpful, yes. It could also d...
89176	I think there is value in incorporating AI to ...
89179	Improve question writing

ResponseId	AISelect	AISent \
2	Yes	Indifferent
3	No, and I don't plan to	NaN
4	No, and I don't plan to	NaN
7	Yes	Unfavorable
8	Yes	Favorable
...
89151	No, and I don't plan to	NaN
89155	No, but I plan to soon	Favorable
89157	Yes	Favorable

89176	Yes	Favorable
89179	No, but I plan to soon	Favorable

AIACC \

ResponseId

2	Other (please explain)
3	NaN
4	NaN
7	Improve accuracy in coding
8	Increase productivity;Speed up learning
...	...
89151	NaN
89155	NaN
89157	Increase productivity;Improve collaboration
89176	Increase productivity;Greater efficiency;Speed...
89179	NaN

AIBen \

ResponseId

2	Somewhat distrust
3	NaN
4	NaN
7	Somewhat distrust
8	Somewhat distrust
...	...
89151	NaN
89155	Somewhat distrust
89157	Somewhat distrust
89176	Somewhat trust
89179	Somewhat distrust

AIToolInterested in Using \

ResponseId

2	Learning about a codebase;Writing code;Debuggi...
3	NaN
4	NaN
7	NaN
8	Project planning;Writing code;Documenting code...
...	...
89151	NaN
89155	NaN
89157	Learning about a codebase;Debugging and gettin...
89176	Learning about a codebase;Documenting code;Deb...
89179	NaN

AIToolCurrently Using \

ResponseId

2	Writing code;Committing and reviewing code
3	NaN
4	NaN
7	Writing code;Debugging and getting help
8	Project planning;Writing code;Debugging and ge...
...	...
89151	NaN
89155	NaN
89157	Writing code;Documenting code
89176	Writing code;Testing code
89179	NaN

AIToolNot interested in Using \

ResponseId	
2	NaN
3	NaN
4	NaN
7	Learning about a codebase;Project planning;Wri...
8	NaN
...	...
89151	NaN
89155	NaN
89157	Project planning;Committing and reviewing code...
89176	Project planning;Committing and reviewing code...
89179	NaN

AINextVery different AINextNeither different nor similar \

ResponseId		
2	NaN	NaN
3	NaN	NaN
4	NaN	NaN
7	NaN	NaN
8	NaN	NaN
...
89151	NaN	NaN
89155	NaN	NaN
89157	NaN	NaN
89176	Writing code;Testing code	NaN
89179	NaN	NaN

AINextSomewhat similar AINextVery similar \

ResponseId		
2	NaN	NaN
3	NaN	NaN
4	NaN	NaN
7	NaN	NaN
8	NaN	NaN

...
89151	NaN	NaN
89155	NaN	NaN
89157	NaN	NaN
89176	NaN	NaN
89179	NaN	NaN

	AINextSomewhat	different	TBranch	ICorPM \
ResponseId				
2		NaN	Yes	People manager
3		NaN	Yes	Individual contributor
4		NaN	Yes	Individual contributor
7		NaN	Yes	Individual contributor
8		NaN	Yes	NaN
...	
89151		NaN	Yes	Individual contributor
89155		NaN	Yes	Individual contributor
89157	Writing code;Documenting code		Yes	People manager
89176		NaN	Yes	Individual contributor
89179		NaN	Yes	Individual contributor

	WorkExp	Knowledge_1	Knowledge_2 \
ResponseId			
2	10.0	Strongly agree	Agree
3	23.0	Strongly agree	Neither agree nor disagree
4	7.0	Strongly agree	Strongly disagree
7	4.0	Strongly agree	Agree
8	5.0	NaN	NaN
...
89151	30.0	Strongly agree	Agree
89155	8.0	Agree	Strongly disagree
89157	8.0	Strongly agree	Agree
89176	8.0	Agree	Neither agree nor disagree
89179	22.0	Strongly agree	Neither agree nor disagree

	Knowledge_3	Knowledge_4 \
ResponseId		
2	Strongly agree	Agree
3	Agree	Agree
4	Strongly agree	Strongly agree
7	Neither agree nor disagree	Neither agree nor disagree
8	NaN	NaN
...
89151	Neither agree nor disagree	Agree
89155	Agree	Disagree
89157	Agree	Agree
89176	Neither agree nor disagree	Strongly agree

89179 Disagree Neither agree nor disagree

ResponseId	Knowledge_5	Knowledge_6 \
2	Agree	Agree
3	Agree	Agree
4	Agree	Neither agree nor disagree
7	Agree	Agree
8	NaN	NaN
...
89151	Agree	Disagree
89155	Agree	Agree
89157	Agree	Strongly agree
89176	Strongly agree	Neither agree nor disagree
89179	Agree	Agree

ResponseId	Knowledge_7	Knowledge_8 \
2	Agree	Strongly agree
3	Agree	Agree
4	Agree	Agree
7	Agree	Neither agree nor disagree
8	NaN	NaN
...
89151	Disagree	Neither agree nor disagree
89155	Strongly agree	Disagree
89157	Neither agree nor disagree	Neither agree nor disagree
89176	Agree	Agree
89179	Strongly agree	Neither agree nor disagree

ResponseId	Frequency_1	Frequency_2	Frequency_3 \
2	1-2 times a week	10+ times a week	Never
3	6-10 times a week	6-10 times a week	3-5 times a week
4	1-2 times a week	10+ times a week	1-2 times a week
7	1-2 times a week	3-5 times a week	1-2 times a week
8	NaN	NaN	NaN
...
89151	1-2 times a week	6-10 times a week	1-2 times a week
89155	Never	1-2 times a week	1-2 times a week
89157	1-2 times a week	10+ times a week	3-5 times a week
89176	1-2 times a week	3-5 times a week	Never
89179	1-2 times a week	1-2 times a week	1-2 times a week

ResponseId	TimeSearching	TimeAnswering \
2	15-30 minutes a day	15-30 minutes a day

3	30-60 minutes a day	30-60 minutes a day
4	15-30 minutes a day	30-60 minutes a day
7	Less than 15 minutes a day	15-30 minutes a day
8	60-120 minutes a day	30-60 minutes a day
...
89151	Less than 15 minutes a day	Less than 15 minutes a day
89155	30-60 minutes a day	30-60 minutes a day
89157	30-60 minutes a day	Over 120 minutes a day
89176	60-120 minutes a day	30-60 minutes a day
89179	15-30 minutes a day	60-120 minutes a day

ProfessionalTech \

ResponseId

2	DevOps function;Microservices;Automated testin...
3	DevOps function;Microservices;Automated testin...
4	Automated testing;Continuous integration (CI) ...
7	Microservices;Automated testing;Continuous int...
8	None of these
...	...
89151	DevOps function;Automated testing;Developer po...
89155	Developer portal or other central places to fi...
89157	Automated testing;Observability tools;Continuo...
89176	DevOps function;Continuous integration (CI) an...
89179	DevOps function;Microservices;Automated testin...

Industry \

ResponseId

2	Information Services, IT, Software Development...
3	Information Services, IT, Software Development...
4	NaN
7	Information Services, IT, Software Development...
8	Financial Services
...	...
89151	Information Services, IT, Software Development...
89155	Information Services, IT, Software Development...
89157	Information Services, IT, Software Development...
89176	Information Services, IT, Software Development...
89179	Insurance

SurveyLength

SurveyEase \

ResponseId

2	Appropriate in length	Easy
3	Appropriate in length	Easy
4	Appropriate in length	Easy
7	Appropriate in length	Easy
8	NaN	NaN
...

89151	Too short	Easy
89155	Appropriate in length	Easy
89157	Appropriate in length	Neither easy nor difficult
89176	Appropriate in length	Neither easy nor difficult
89179	Appropriate in length	Easy

ConvertedCompYearly	
ResponseId	
2	285000.0
3	250000.0
4	156000.0
7	135000.0
8	80000.0
...	...
89151	NaN
89155	75000.0
89157	195000.0
89176	NaN
89179	NaN

[18647 rows x 83 columns]

```
[ ]: data.query('ConvertedCompYearly>=100000 & Country=="India" & RemoteWork ==  
↳ "Remote" & YearsCodePro=="12"')
```

[]:	Q120	MainBranch	Age \
ResponseId			
52814	I agree I am a developer by profession	35-44 years old	
58985	I agree I am a developer by profession	35-44 years old	

	Employment	RemoteWork \
ResponseId		
52814	Independent contractor, freelancer, or self-em...	Remote
58985	Employed, full-time	Remote

	CodingActivities \
ResponseId	
52814	I don't code outside of work
58985	I don't code outside of work

	EdLevel \
ResponseId	
52814	Master's degree (M.A., M.S., M.Eng., MBA, etc.)
58985	Bachelor's degree (B.A., B.S., B.Eng., etc.)

	LearnCode \
ResponseId	

52814	Books / Physical media;Hackathons (virtual or ...
58985	On the job training;Other online resources (e...

LearnCodeOnline LearnCodeCoursesCert \

ResponseId

52814	NaN	Coursera
58985	Blogs with tips and tricks;Stack Overflow	NaN

YearsCode YearsCodePro DevType \

ResponseId

52814	24	12	Developer, full-stack
58985	14	12	Developer, mobile

OrgSize PurchaseInfluence \

ResponseId

52814	10 to 19 employees	I have a great deal of influence
58985	500 to 999 employees	I have little or no influence

TechList BuyNewTool \

ResponseId

52814	Investigate	Start a free trial;Ask developers I know/work ...
58985	NaN	Start a free trial;Ask developers I know/work ...

Country Currency CompTotal \

ResponseId

52814	India	INR\tIndian rupee	22200000.0
58985	India	INR\tIndian rupee	8800000.0

LanguageHaveWorkedWith \

ResponseId

52814	Bash/Shell (all shells);Go;HTML/CSS;JavaScript...
58985	Flow;HTML/CSS;JavaScript;Kotlin;Objective-C;Swift

LanguageWantToWorkWith \

ResponseId

52814	C++;Elixir;Go;HTML/CSS;JavaScript;Lua;Python;R...
58985	NaN

DatabaseHaveWorkedWith \

ResponseId

52814	BigQuery;Cloud Firestore;Dynamodb;Elasticsearc...
58985	Firebase Realtime Database;SQLite

DatabaseWantToWorkWith \

ResponseId

52814	BigQuery;DuckDB;Dynamodb;Firebase Realtime Dat...
58985	NaN

		PlatformHaveWorkedWith \
ResponseId		
52814	Amazon Web Services (AWS);Google Cloud;Vercel	
58985		NaN
		PlatformWantToWorkWith \
ResponseId		
52814	Amazon Web Services (AWS);Cloudflare;Fly.io;Go...	
58985		NaN
		WebframeHaveWorkedWith \
ResponseId		
52814	Express;Flask;Next.js;Node.js;React;WordPress	
58985		NaN
		WebframeWantToWorkWith \
ResponseId		
52814	Django;Express;FastAPI;Flask;Next.js;Node.js;P...	
58985		NaN
	MiscTechHaveWorkedWith \	
ResponseId		
52814	NumPy;Pandas	
58985	React Native;Xamarin	
		MiscTechWantToWorkWith \
ResponseId		
52814	Apache Kafka;Apache Spark;Electron;NumPy;OpenG...	
58985		NaN
		ToolsTechHaveWorkedWith \
ResponseId		
52814	Docker;Homebrew;Kubernetes;Make;npm;Pip;Terraf...	
58985	Homebrew;LLVM's Clang;Make;npm;Yarn	
		ToolsTechWantToWorkWith \
ResponseId		
52814	Chef;CMake;Docker;Homebrew;Kubernetes;Make;npm...	
58985		NaN
		NEWCollabToolsHaveWorkedWith \
ResponseId		
52814	Visual Studio Code	
58985	Android Studio;Atom;IntelliJ IDEA;Vim;Visual S...	
		NEWCollabToolsWantToWorkWith \

ResponseId			
52814	Jupyter Notebook/JupyterLab;Visual Studio Code		
58985		NaN	
	OpSysPersonal use	OpSysProfessional use	\
ResponseId			
52814	Android;iOS;MacOS;Windows	Debian;Other Linux-based;Ubuntu	
58985	Android;iOS;iPadOS;MacOS	Android;iOS;iPadOS;MacOS	
	OfficeStackAsyncHaveWorkedWith	\	
ResponseId			
52814	Confluence;Jira;Markdown File;Miro;Notion;Trello		
58985	Confluence;Jira;Wikis		
	OfficeStackAsyncWantToWorkWith	\	
ResponseId			
52814	Markdown File;Miro;Notion;Stack Overflow for T...		
58985	Document360;Doxygen;GitHub Discussions		
	OfficeStackSyncHaveWorkedWith	\	
ResponseId			
52814	Discord;Google Meet;Slack;Zoom		
58985	Slack;Zoom		
	OfficeStackSyncWantToWorkWith	AIsearchHaveWorkedWith	\
ResponseId			
52814	Google Meet;Signal;Slack;Whatsapp;Zoom	ChatGPT	
58985	NaN	ChatGPT	
	AIsearchWantToWorkWith	AIdevHaveWorkedWith	\
ResponseId			
52814	ChatGPT;Google Bard AI	AWS CodeWhisperer	
58985	NaN	NaN	
	AIdevWantToWorkWith	\	
ResponseId			
52814	AWS CodeWhisperer;GitHub Copilot;Rubber Duck.AI		
58985	NaN		
	NEWSOSites	\	
ResponseId			
52814	Stack Overflow;Stack Exchange;Stack Overflow f...		
58985	Stack Overflow;Collectives on Stack Overflow		
	SOVisitFreq	SOAccount	\
ResponseId			
52814	Multiple times per day	Yes	

58985	A few times per month or weekly	Yes	
		SOPartFreq	SOComm \
ResponseId			
52814	Less than once per month or monthly	Yes, somewhat	
58985	A few times per month or weekly	Yes, somewhat	
			SOAI \
ResponseId			
52814			NaN
58985	Its a great idea to integrate the AI to stack ...		
		AISelect	AISent \
ResponseId			
52814		Yes	Favorable
58985	No, but I plan to soon	Favorable	
			AIAcc \
ResponseId			
52814	Increase productivity;Greater efficiency;Impro...		
58985			NaN
			AIBen \
ResponseId			
52814	Highly distrust		
58985	Highly trust		
			AIToolInterested in Using \
ResponseId			
52814	Learning about a codebase;Project planning;Deb...		
58985			NaN
			AIToolCurrently Using AIToolNot interested in Using \
ResponseId			
52814	Writing code;Documenting code		NaN
58985		NaN	NaN
			AINextVery different AINextNeither different nor similar \
ResponseId			
52814	Documenting code		NaN
58985		NaN	NaN
			AINextSomewhat similar AINextVery similar AINextSomewhat different \
ResponseId			
52814		NaN	NaN Writing code
58985		NaN	NaN NaN

ResponseId	TBranch	ICorPM	WorkExp	Knowledge_1	\
52814	Yes	People manager	12.0	Strongly agree	
58985	Yes	Individual contributor	12.0	Agree	

ResponseId	Knowledge_2	Knowledge_3	Knowledge_4	Knowledge_5	\
52814	Agree	Disagree	Neither agree nor disagree	Agree	
58985	Disagree	Disagree	Agree	Agree	

ResponseId	Knowledge_6	Knowledge_7	\
52814	Neither agree nor disagree	Neither agree nor disagree	
58985	Neither agree nor disagree	Neither agree nor disagree	

ResponseId	Knowledge_8	Frequency_1	Frequency_2	\
52814	Strongly agree	1-2 times a week	3-5 times a week	
58985	Agree	1-2 times a week	1-2 times a week	

ResponseId	Frequency_3	TimeSearching	TimeAnswering	\
52814	1-2 times a week	Over 120 minutes a day	30-60 minutes a day	
58985	Never	Less than 15 minutes a day	15-30 minutes a day	

ResponseId	ProfessionalTech	\
52814	None of these	
58985	DevOps function;Microservices;Automated testin...	

ResponseId	Industry	\
52814	NaN	
58985	Information Services, IT, Software Development...	

ResponseId	SurveyLength	SurveyEase	\
52814	Appropriate in length	Neither easy nor difficult	
58985	Appropriate in length	Neither easy nor difficult	

ResponseId	ConvertedCompYearly
52814	268995.0
58985	106629.0

```
[ ]: data.query('ConvertedCompYearly>=100000 & Country=="India" & RemoteWork ==_
↳ "Remote" & YearsCodePro=="8"')
```

[]:	Q120	MainBranch	Age \
ResponseId			
48195	I agree I am a developer by profession	25-34 years old	
	Employment RemoteWork \		
ResponseId			
48195	Employed, full-time	Remote	
	CodingActivities \		
ResponseId			
48195	Hobby;Contribute to open-source projects;Boots...		
	EdLevel \		
ResponseId			
48195	Master's degree (M.A., M.S., M.Eng., MBA, etc.)		
	LearnCode \		
ResponseId			
48195	Books / Physical media;Online Courses or Certi...		
	LearnCodeOnline \		
ResponseId			
48195	Formal documentation provided by the owner of ...		
	LearnCodeCoursesCert YearsCode YearsCodePro DevType \		
ResponseId			
48195	Udemy;Pluralsight	17	8 Educator
	OrgSize PurchaseInfluence TechList \		
ResponseId			
48195	1,000 to 4,999 employees	I have some influence	Investigate
	BuyNewTool Country \		
ResponseId			
48195	Start a free trial;Ask developers I know/work ...	India	
	Currency CompTotal \		
ResponseId			
48195	INR\tIndian rupee	12000000.0	
	LanguageHaveWorkedWith \		
ResponseId			
48195	HTML/CSS;Java;JavaScript;Python;SQL;TypeScript		
	LanguageWantToWorkWith \		
ResponseId			
48195	Haskell;HTML/CSS;Nim;Python;Rust;TypeScript		

	DatabaseHaveWorkedWith	DatabaseWantToWorkWith	\
ResponseId			
48195	PostgreSQL;Supabase	PostgreSQL;Redis;SQLite	
	PlatformHaveWorkedWith	PlatformWantToWorkWith	\
ResponseId			
48195	NaN	NaN	
	WebframeHaveWorkedWith	WebframeWantToWorkWith	\
ResponseId			
48195	Django;Next.js;React;Svelte	Deno;Django;FastAPI;Svelte	
	MiscTechHaveWorkedWith	MiscTechWantToWorkWith	\
ResponseId			
48195	NaN	NaN	
	ToolsTechHaveWorkedWith	ToolsTechWantToWorkWith	\
ResponseId			
48195	Vite;Webpack;Yarn	Kubernetes;Terraform;Vite;Yarn	
	NEWCollabToolsHaveWorkedWith		\
ResponseId			
48195	CLion;IntelliJ IDEA;PyCharm;Sublime Text;WebStorm		
	NEWCollabToolsWantToWorkWith	OpSysPersonal use	\
ResponseId			
48195	IntelliJ IDEA;PyCharm;Visual Studio Code	MacOS	
	OpSysProfessional use	OfficeStackAsyncHaveWorkedWith	\
ResponseId			
48195	MacOS	NaN	
	OfficeStackAsyncWantToWorkWith	OfficeStackSyncHaveWorkedWith	\
ResponseId			
48195	NaN	Google Meet;Slack;Whatsapp;Zoom	
	OfficeStackSyncWantToWorkWith	AISeachHaveWorkedWith	\
ResponseId			
48195	Google Meet;Slack;Whatsapp	ChatGPT	
	AISeachWantToWorkWith	AIDevHaveWorkedWith	AIDevWantToWorkWith \
ResponseId			
48195	ChatGPT	GitHub Copilot	GitHub Copilot
	NEWSOSites	SOVisitFreq	SOAccount \
ResponseId			

48195	Stack Overflow;Stack Exchange	Multiple times per day	Yes
	SOPartFreq	SOCComm	\
ResponseId			
48195	Less than once per month or monthly	No, not really	
		SOAI AISelect	\
ResponseId			
48195	AI can be used to answer simpler/repetitive qu...	Yes	
	AISent		AIAcc \
ResponseId			
48195	Very favorable	Increase productivity;Greater efficiency;Speed...	
	AIBen	AIToolInterested in Using	\
ResponseId			
48195	Somewhat trust	Learning about a codebase;Project planning;Wri...	
		AIToolCurrently Using	AIToolNot interested in Using \
ResponseId			
48195	Writing code;Documenting code		NaN
		AINextVery different	AINextNeither different nor similar \
ResponseId			
48195	Writing code;Documenting code		NaN
		AINextSomewhat similar	AINextVery similar
ResponseId			AINextSomewhat different \
48195		NaN	NaN
	TBranch	ICorPM	WorkExp Knowledge_1 \
ResponseId			
48195	Yes	Individual contributor	8.0 Agree
		Knowledge_2	Knowledge_3 Knowledge_4 Knowledge_5 \
ResponseId			
48195	Strongly agree	Disagree	Strongly disagree Disagree
		Knowledge_6	Knowledge_7 Knowledge_8 \
ResponseId			
48195	Strongly agree	Strongly agree	Strongly disagree
		Frequency_1	Frequency_2 Frequency_3 \
ResponseId			
48195	10+ times a week	10+ times a week	10+ times a week
	TimeSearching	TimeAnswering	\

ResponseId			
48195	30-60 minutes a day	30-60 minutes a day	

ProfessionalTech \

ResponseId	
48195	DevOps function;Microservices;Observability to...

	Industry	SurveyLength	SurveyEase	ConvertedCompYearly
ResponseId				
48195	Higher Education	Too short	Easy	145403.0

```
[ ]: data['YearsCodePro'] = pd.to_numeric(data['YearsCodePro'],errors='coerce')
```

```
[ ]: #making 100k with less than 12 years of experience.
data.query('ConvertedCompYearly>=100000 & Country=="India" & RemoteWork ==_
↪ "Remote" & YearsCodePro<12')
```

	Q120	MainBranch
ResponseId		
5411	I agree	I am a developer by profession
36752	I agree	I am not primarily a developer, but I write co...
44276	I agree	I am a developer by profession
48195	I agree	I am a developer by profession
76024	I agree	I am a developer by profession
86253	I agree	I am a developer by profession

	Age	Employment	RemoteWork
ResponseId			
5411	25-34 years old	Employed, full-time	Remote
36752	25-34 years old	Employed, full-time	Remote
44276	25-34 years old	Employed, full-time	Remote
48195	25-34 years old	Employed, full-time	Remote
76024	25-34 years old	Employed, full-time	Remote
86253	25-34 years old	Employed, full-time	Remote

	CodingActivities
ResponseId	
5411	Contribute to open-source projects
36752	Hobby
44276	Hobby;Professional development or self-paced l...
48195	Hobby;Contribute to open-source projects;Boots...
76024	Hobby;Professional development or self-paced l...
86253	Contribute to open-source projects;Bootstrappi...

	EdLevel
ResponseId	
5411	Bachelor's degree (B.A., B.S., B.Eng., etc.)

36752	Master's degree (M.A., M.S., M.Eng., MBA, etc.)
44276	Master's degree (M.A., M.S., M.Eng., MBA, etc.)
48195	Master's degree (M.A., M.S., M.Eng., MBA, etc.)
76024	Bachelor's degree (B.A., B.S., B.Eng., etc.)
86253	Bachelor's degree (B.A., B.S., B.Eng., etc.)

ResponseId	LearnCode \
5411	Books / Physical media;Colleague;Hackathons (v...
36752	Books / Physical media;Other online resources ...
44276	Online Courses or Certification;Other online r...
48195	Books / Physical media;Online Courses or Certi...
76024	Online Courses or Certification;Other online r...
86253	Hackathons (virtual or in-person);Online Cours...

ResponseId	LearnCodeOnline \
5411	Formal documentation provided by the owner of ...
36752	Formal documentation provided by the owner of ...
44276	Formal documentation provided by the owner of ...
48195	Formal documentation provided by the owner of ...
76024	Formal documentation provided by the owner of ...
86253	Formal documentation provided by the owner of ...

ResponseId	LearnCodeCoursesCert	YearsCode	YearsCodePro \
5411	Udemy	15	10.0
36752	NaN	20	11.0
44276	Other;Codecademy;Coursera	15	11.0
48195	Udemy;Pluralsight	17	8.0
76024	Codecademy;Udemy;Coursera	14	10.0
86253	NaN	11	5.0

ResponseId	DevType	OrgSize \
5411	Developer, back-end	10,000 or more employees
36752	Engineering manager	5,000 to 9,999 employees
44276	Developer, front-end	100 to 499 employees
48195	Educator	1,000 to 4,999 employees
76024	Developer, full-stack	10,000 or more employees
86253	Senior Executive (C-Suite, VP, etc.)	10 to 19 employees

ResponseId	PurchaseInfluence	TechList \
5411	I have some influence	Given a list
36752	I have little or no influence	NaN
44276	I have little or no influence	NaN

48195	I have some influence	Investigate
76024	I have little or no influence	NaN
86253	I have a great deal of influence	Investigate

	BuyNewTool	Country	\
ResponseId			
5411	Ask developers I know/work with;Visit develope...	India	
36752	Start a free trial;Ask developers I know/work ...	India	
44276	Start a free trial;Visit developer communities...	India	
48195	Start a free trial;Ask developers I know/work ...	India	
76024	Start a free trial;Ask developers I know/work ...	India	
86253	Start a free trial;Ask developers I know/work ...	India	

	Currency	CompTotal	\
ResponseId			
5411	INR\tIndian rupee	10000000.0	
36752	INR\tIndian rupee	10000000.0	
44276	CAD\tCanadian dollar	150000.0	
48195	INR\tIndian rupee	12000000.0	
76024	INR\tIndian rupee	9000000.0	
86253	INR\tIndian rupee	11200000.0	

	LanguageHaveWorkedWith	\
ResponseId		
5411	C++;HTML/CSS;JavaScript;Python	
36752	C++;Go;Java;JavaScript;Python	
44276	JavaScript;TypeScript	
48195	HTML/CSS;Java;JavaScript;Python;SQL;TypeScript	
76024	HTML/CSS;Java;JavaScript	
86253	HTML/CSS;JavaScript;TypeScript	

	LanguageWantToWorkWith	\
ResponseId		
5411	C++;HTML/CSS;JavaScript;Python	
36752	Go;Java;Kotlin;Rust;Swift;TypeScript	
44276	Go;Ruby;Rust	
48195	Haskell;HTML/CSS;Nim;Python;Rust;TypeScript	
76024	Go;HTML/CSS;Java;JavaScript;Python	
86253	HTML/CSS;JavaScript;TypeScript	

	DatabaseHaveWorkedWith	\
ResponseId		
5411	MongoDB	
36752	BigQuery;Cassandra;Couch DB;Elasticsearch;Mari...	
44276	NaN	
48195	PostgreSQL;Supabase	
76024	MariaDB;MongoDB;MySQL	

86253	Cloud Firestore;Elasticsearch;Firebase Realtime...
-------	--

	DatabaseWantToWorkWith \
ResponseId	
5411	MongoDB
36752	Cassandra;Cloud Firestore;Dynamodb;Elasticsearch...
44276	NaN
48195	PostgreSQL;Redis;SQLite
76024	Dynamodb;MariaDB;MongoDB;MySQL;PostgreSQL
86253	Cloud Firestore;Elasticsearch;Firebase Realtime...

	PlatformHaveWorkedWith \
ResponseId	
5411	Amazon Web Services (AWS);Cloudflare;Digital Ocean...
36752	Amazon Web Services (AWS);Google Cloud
44276	Amazon Web Services (AWS);Google Cloud
48195	NaN
76024	Amazon Web Services (AWS);Microsoft Azure
86253	Google Cloud;Netlify

	PlatformWantToWorkWith \
ResponseId	
5411	Amazon Web Services (AWS);Cloudflare;Digital Ocean...
36752	Amazon Web Services (AWS)
44276	Microsoft Azure
48195	NaN
76024	Amazon Web Services (AWS);Google Cloud;Microsoft...
86253	Google Cloud;Netlify

	WebframeHaveWorkedWith \
ResponseId	
5411	Node.js;React
36752	Django;Express;FastAPI;Flask;Next.js;Node.js;R...
44276	React
48195	Django;Next.js;React;Svelte
76024	jQuery;Node.js
86253	NestJS;Node.js;Nuxt.js;Vue.js

	WebframeWantToWorkWith \
ResponseId	
5411	Node.js;React
36752	FastAPI;React;Spring Boot
44276	Vue.js
48195	Deno;Django;FastAPI;Svelte
76024	jQuery;Node.js
86253	NestJS;Node.js;Nuxt.js;Vue.js

	MiscTechHaveWorkedWith \
ResponseId	
5411	CUDA;GTK;OpenGL;Qt;TensorFlow;Torch/PyTorch
36752	Apache Kafka;Hugging Face Transformers;NumPy;P...
44276	NaN
48195	NaN
76024	NaN
86253	Tauri

	MiscTechWantToWorkWith \
ResponseId	
5411	CUDA;GTK;OpenGL;Qt;TensorFlow;Torch/PyTorch
36752	Apache Kafka;Hugging Face Transformers;NumPy;P...
44276	NaN
48195	NaN
76024	NaN
86253	Tauri

	ToolsTechHaveWorkedWith \
ResponseId	
5411	GNU GCC;LLVM's Clang;Unreal Engine
36752	Docker;GNU GCC;Gradle;Kubernetes;Make;Maven (b...
44276	Docker;Webpack;Yarn
48195	Vite;Webpack;Yarn
76024	Homebrew;npm;Webpack
86253	Docker;Homebrew;npm;pnpm;Vite

	ToolsTechWantToWorkWith \
ResponseId	
5411	GNU GCC;LLVM's Clang;Unreal Engine
36752	Docker;GNU GCC;Gradle;Kubernetes;Make;Maven (b...
44276	NaN
48195	Kubernetes;Terraform;Vite;Yarn
76024	Homebrew;Kubernetes;npm;Webpack
86253	Docker;Homebrew;npm;pnpm;Vite

	NEWCollabToolsHaveWorkedWith \
ResponseId	
5411	CLion;Kate;Nano;Notepad++;Qt Creator;Rad Studi...
36752	Goland;IntelliJ IDEA;IPython;Jupyter Notebook/...
44276	RubyMine
48195	CLion;IntelliJ IDEA;PyCharm;Sublime Text;WebStorm
76024	IntelliJ IDEA;Visual Studio Code
86253	Visual Studio Code

	NEWCollabToolsWantToWorkWith \
ResponseId	

5411	CLion;Kate;Nano;Notepad++;Qt Creator;Rad Studi...
36752	Goland;IntelliJ IDEA;IPython;Jupyter Notebook/...
44276	NaN
48195	IntelliJ IDEA;PyCharm;Visual Studio Code
76024	IntelliJ IDEA;Visual Studio Code
86253	Visual Studio Code

OpSysPersonal use \

ResponseId

5411	Arch;Debian;Other Linux-based;Red Hat;Ubuntu;W...
36752	MacOS;Ubuntu
44276	MacOS
48195	MacOS
76024	MacOS
86253	MacOS

OpSysProfessional use \

ResponseId

5411	Arch;Debian;Other Linux-based;Red Hat;Ubuntu;W...
36752	MacOS;Ubuntu
44276	NaN
48195	MacOS
76024	MacOS
86253	MacOS

OfficeStackAsyncHaveWorkedWith \

ResponseId

5411	NaN
36752	Confluence;GitHub Discussions;Notion
44276	Jira
48195	NaN
76024	Markdown File;Microsoft Planner;Miro
86253	GitHub Discussions;Linear

OfficeStackAsyncWantToWorkWith \

ResponseId

5411	NaN
36752	Confluence;GitHub Discussions;Notion
44276	NaN
48195	NaN
76024	Markdown File;Microsoft Planner;Miro
86253	GitHub Discussions;Linear

OfficeStackSyncHaveWorkedWith \

ResponseId

5411	Discord;Google Meet;Microsoft Teams;Telegram;W...
36752	Google Meet;Microsoft Teams;Slack;Zoom

44276	Microsoft Teams;Slack;Zoom
48195	Google Meet;Slack;Whatsapp;Zoom
76024	Mattermost;Microsoft Teams
86253	Discord;Google Meet;Signal;Telegram;Whatsapp;Zoom

OfficeStackSyncWantToWorkWith \

ResponseId

5411	Discord;Google Meet;Microsoft Teams;Telegram;W...
36752	Google Meet;Microsoft Teams;Slack;Zoom
44276	NaN
48195	Google Meet;Slack;Whatsapp
76024	Mattermost;Microsoft Teams
86253	Discord;Google Meet;Signal;Telegram;Whatsapp;Zoom

AISearchHaveWorkedWith

AISearchWantToWorkWith \

ResponseId

5411	ChatGPT	ChatGPT
36752	ChatGPT	ChatGPT
44276	NaN	NaN
48195	ChatGPT	ChatGPT
76024	ChatGPT;Google Bard AI	ChatGPT;Google Bard AI;WolframAlpha
86253	ChatGPT	ChatGPT

AIDevHaveWorkedWith AIDevWantToWorkWith \

ResponseId

5411	NaN	NaN
36752	NaN	NaN
44276	GitHub Copilot	GitHub Copilot
48195	GitHub Copilot	GitHub Copilot
76024	NaN	NaN
86253	GitHub Copilot	GitHub Copilot

NEWSOSites \

ResponseId

5411	Stack Overflow;Stack Exchange
36752	Stack Overflow;Stack Exchange;Collectives on S...
44276	Stack Overflow
48195	Stack Overflow;Stack Exchange
76024	Stack Overflow;Stack Exchange;Collectives on S...
86253	Stack Overflow

SOVisitFreq

SOAccount \

ResponseId

5411	Less than once per month or monthly	Yes
36752	A few times per month or weekly	Not sure/can't remember
44276	Daily or almost daily	Yes
48195	Multiple times per day	Yes

76024	A few times per month or weekly	Yes
86253	Daily or almost daily	Yes

	SOPartFreq	SOCComm \
ResponseId		
5411	A few times per week	Yes, somewhat
36752	NaN	No, not really
44276	Less than once per month or monthly	Yes, somewhat
48195	Less than once per month or monthly	No, not really
76024	Less than once per month or monthly	Yes, definitely
86253	Less than once per month or monthly	Neutral

	SOAI \
ResponseId	
5411	NaN
36752	With the archive of knowledge, stack over flow...
44276	We on stackoverflow can generate more describe...
48195	AI can be used to answer simpler/repetitive qu...
76024	That's the future we need to embrace and adapt.
86253	NaN

	AISelect	AISent \
ResponseId		
5411	No, but I plan to soon	Unsure
36752	No, but I plan to soon	Favorable
44276	Yes	Favorable
48195	Yes	Very favorable
76024	No, but I plan to soon	Favorable
86253	Yes	Very favorable

	AIAcc \
ResponseId	
5411	NaN
36752	NaN
44276	Increase productivity;Speed up learning;Improv...
48195	Increase productivity;Greater efficiency;Speed...
76024	NaN
86253	Increase productivity;Greater efficiency;Speed...

	AIBen \
ResponseId	
5411	Somewhat trust
36752	Neither trust nor distrust
44276	Somewhat trust
48195	Somewhat trust
76024	Somewhat trust
86253	Somewhat trust

ResponseId	AIToolInterested in Using \
5411	NaN
36752	NaN
44276	Committing and reviewing code
48195	Learning about a codebase;Project planning;Wri...
76024	NaN
86253	Learning about a codebase;Project planning;Wri...

ResponseId	AIToolCurrently Using \
5411	NaN
36752	NaN
44276	Writing code;Documenting code;Testing code
48195	Writing code;Documenting code
76024	NaN
86253	Learning about a codebase;Project planning;Wri...

ResponseId	AIToolNot interested in Using \
5411	NaN
36752	NaN
44276	NaN
48195	NaN
76024	NaN
86253	Learning about a codebase;Project planning;Wri...

ResponseId	AINextVery different \
5411	NaN
36752	NaN
44276	Documenting code
48195	Writing code;Documenting code
76024	NaN
86253	Project planning;Documenting code;Debugging an...

ResponseId	AINextNeither different nor similar	AINextSomewhat similar \
5411	NaN	NaN
36752	NaN	NaN
44276	NaN	NaN
48195	NaN	NaN
76024	NaN	NaN
86253	NaN	Writing code

AINextVery similar \

ResponseId

5411	NaN
36752	NaN
44276	NaN
48195	NaN
76024	NaN
86253	NaN

AINextSomewhat different TBranch \

ResponseId

5411	NaN	Yes
36752	NaN	Yes
44276	Writing code;Testing code	Yes
48195	NaN	Yes
76024	NaN	Yes
86253	Learning about a codebase;Collaborating with t...	Yes

ICorPM WorkExp Knowledge_1 \

ResponseId

5411	Individual contributor	10.0	Agree
36752	People manager	10.0	Strongly agree
44276	Individual contributor	11.0	Neither agree nor disagree
48195	Individual contributor	8.0	Agree
76024	Individual contributor	10.0	Strongly agree
86253	People manager	9.0	Agree

Knowledge_2 Knowledge_3 \

ResponseId

5411	Strongly disagree	Strongly agree
36752	Strongly disagree	Strongly agree
44276	Agree	Neither agree nor disagree
48195	Strongly agree	Disagree
76024	Agree	Disagree
86253	Agree	Agree

Knowledge_4 Knowledge_5 \

ResponseId

5411	Strongly agree	Strongly agree
36752	Strongly agree	Strongly agree
44276	Neither agree nor disagree	Agree
48195	Strongly disagree	Disagree
76024	Agree	Agree
86253	Agree	Agree

Knowledge_6 Knowledge_7 \

ResponseId

5411	Strongly disagree	Strongly disagree
------	-------------------	-------------------

36752	Neither agree nor disagree	Strongly disagree
44276	Neither agree nor disagree	Neither agree nor disagree
48195	Strongly agree	Strongly agree
76024	Agree	Agree
86253	Agree	Agree

ResponseId	Knowledge_8	Frequency_1	Frequency_2 \
5411	Strongly agree	1-2 times a week	6-10 times a week
36752	Strongly agree	1-2 times a week	1-2 times a week
44276	Neither agree nor disagree	1-2 times a week	1-2 times a week
48195	Strongly disagree	10+ times a week	10+ times a week
76024	Agree	1-2 times a week	1-2 times a week
86253	Agree	1-2 times a week	Never

ResponseId	Frequency_3	TimeSearching \
5411	Never	15-30 minutes a day
36752	Never	Less than 15 minutes a day
44276	3-5 times a week	30-60 minutes a day
48195	10+ times a week	30-60 minutes a day
76024	1-2 times a week	Less than 15 minutes a day
86253	1-2 times a week	Less than 15 minutes a day

ResponseId	TimeAnswering \
5411	15-30 minutes a day
36752	Less than 15 minutes a day
44276	Less than 15 minutes a day
48195	30-60 minutes a day
76024	30-60 minutes a day
86253	15-30 minutes a day

ResponseId	ProfessionalTech \
5411	DevOps function;Microservices;Automated testin...
36752	DevOps function;Microservices;Automated testin...
44276	DevOps function;Automated testing;Developer po...
48195	DevOps function;Microservices;Observability to...
76024	DevOps function;Microservices;Automated testin...
86253	Microservices;Developer portal or other centra...

ResponseId	Industry \
5411	Information Services, IT, Software Development...
36752	Other
44276	Financial Services

48195	Higher Education
76024	Information Services, IT, Software Development...
86253	Information Services, IT, Software Development...

ResponseId	SurveyLength	SurveyEase \
5411	Appropriate in length	Easy
36752	Appropriate in length	Easy
44276	Appropriate in length	Neither easy nor difficult
48195	Too short	Easy
76024	NaN	Easy
86253	Appropriate in length	Neither easy nor difficult

ResponseId	ConvertedCompYearly
5411	121169.0
36752	121169.0
44276	111527.0
48195	145403.0
76024	109052.0
86253	135709.0

```
[ ]: sample_devs=data.query('ConvertedCompYearly>=100000 & Country=="India" &
↳RemoteWork == "Remote" & YearsCodePro<12')
```

```
[ ]: sample_devs['LanguageHaveWorkedWith'].value_counts()
```

```
[ ]: LanguageHaveWorkedWith
C++;HTML/CSS;JavaScript;Python      1
C++;Go;Java;JavaScript;Python      1
JavaScript;TypeScript              1
HTML/CSS;Java;JavaScript;Python;SQL;TypeScript  1
HTML/CSS;Java;JavaScript            1
HTML/CSS;JavaScript;TypeScript      1
Name: count, dtype: int64
```

```
[ ]: sample_devs['WebframeHaveWorkedWith'].value_counts()
```

```
[ ]: WebframeHaveWorkedWith
Node.js;React      1
Django;Express;FastAPI;Flask;Next.js;Node.js;React;Spring Boot  1
React              1
Django;Next.js;React;Svelte  1
jQuery;Node.js          1
NestJS;Node.js;Nuxt.js;Vue.js  1
Name: count, dtype: int64
```

```
[ ]: sample_devs['OpSysProfessional use'].value_counts()
```

```
[ ]: OpSysProfessional use
      MacOS 3
      Arch;Debian;Other Linux-based;Red Hat;Ubuntu;Windows 1
      MacOS;Ubuntu 1
      Name: count, dtype: int64
```

```
[ ]: sample_devs['PlatformHaveWorkedWith'].value_counts()
```

```
[ ]: PlatformHaveWorkedWith
      Amazon Web Services (AWS);Google Cloud 2
      Amazon Web Services (AWS);Cloudflare;Digital Ocean;Google Cloud;OVH 1
      Amazon Web Services (AWS);Microsoft Azure 1
      Google Cloud;Netlify 1
      Name: count, dtype: int64
```

```
[ ]: #Remove Outliers
      max_value = data['ConvertedCompYearly'].max()
      second_highest = data[data['ConvertedCompYearly'] <
      ↪max_value]['ConvertedCompYearly']
```

```
[ ]: second_highest.sort_values(ascending=False)
```

```
[ ]: ResponseId
      77849 73607918.0
      66224 72714292.0
      28122 57513831.0
      19680 36573181.0
      55103 17612921.0
      ...
      87481 1.0
      37161 1.0
      8863 1.0
      37315 1.0
      85525 1.0
      Name: ConvertedCompYearly, Length: 48018, dtype: float64
```

```
[ ]: #Find the 95 percentile
      data['ConvertedCompYearly'].quantile(0.95)
```

```
[ ]: 230000.0
```

```
[ ]: #Find the 99 percentile
      max_salary = data['ConvertedCompYearly'].quantile(0.999)
```

```
[ ]: data = data[data['ConvertedCompYearly'] < max_salary]
```

```
[ ]: data['ConvertedCompYearly'].max()
```

```
[ ]: 1083111.0
```

```
[ ]: data[data['ConvertedCompYearly'] == data['ConvertedCompYearly'].max()]
```

```
[ ]:      Q120      MainBranch      Age \
ResponseId
18472      I agree  I am a developer by profession  25-34 years old

      Employment \
ResponseId
18472      Employed, full-time;Independent contractor, fr...

      RemoteWork \
ResponseId
18472      Hybrid (some remote, some in-person)

      CodingActivities      EdLevel \
ResponseId
18472      Hobby;Contribute to open-source projects;Boots...  Something else

      LearnCode LearnCodeOnline \
ResponseId
18472      Books / Physical media;Colleague;Friend or fam...      NaN

      LearnCodeCoursesCert YearsCode  YearsCodePro      DevType \
ResponseId
18472      Codecademy;Skillsoft      10      11.0  Project manager

      OrgSize \
ResponseId
18472      Just me - I am a freelancer, sole proprietor, ...

      PurchaseInfluence      TechList \
ResponseId
18472      I have some influence  Given a list

      BuyNewTool  Country \
ResponseId
18472      Start a free trial;Research companies that hav...  Nigeria

      Currency  CompTotal      LanguageHaveWorkedWith \
ResponseId
18472      NGN\tNigerian naira  5000000000.0  Bash/Shell (all shells);Swift

      LanguageWantToWorkWith DatabaseHaveWorkedWith \
```


ResponseId			
18472	Ada;Assembly;Bash/Shell (all shells);Swift		Clickhouse
		DatabaseWantToWorkWith \	
ResponseId			
18472	BigQuery;Clickhouse;Firebase Realtime Database...		
		PlatformHaveWorkedWith \	
ResponseId			
18472	Amazon Web Services (AWS);Google Cloud		
		PlatformWantToWorkWith \	
ResponseId			
18472	Amazon Web Services (AWS);Google Cloud;Netlify...		
	WebframeHaveWorkedWith	WebframeWantToWorkWith \	
ResponseId			
18472	WordPress	Express;WordPress	
	MiscTechHaveWorkedWith	MiscTechWantToWorkWith \	
ResponseId			
18472	NaN	NaN	
	ToolsTechHaveWorkedWith	ToolsTechWantToWorkWith \	
ResponseId			
18472	NaN	NaN	
	NEWCollabToolsHaveWorkedWith \		
ResponseId			
18472	Android Studio;DataGrip		
		NEWCollabToolsWantToWorkWith \	
ResponseId			
18472	Android Studio;DataGrip;RStudio;Visual Studio ...		
	OpSysPersonal use	OpSysProfessional use \	
ResponseId			
18472	Android	Android	
	OfficeStackAsyncHaveWorkedWith \		
ResponseId			
18472	Adobe Workfront		
		OfficeStackAsyncWantToWorkWith \	
ResponseId			
18472	Adobe Workfront;Microsoft Planner;Swit;YouTrack		

	OfficeStackSyncHaveWorkedWith	OfficeStackSyncWantToWorkWith	\
ResponseId			
18472	Telegram;Whatsapp	Telegram;Whatsapp	
	AIsearchHaveWorkedWith	AIsearchWantToWorkWith	AIdevHaveWorkedWith \
ResponseId			
18472	Andi	Andi	NaN
	AIdevWantToWorkWith	\	
ResponseId			
18472	NaN		
		NEWSOSites	\
ResponseId			
18472	Stack Overflow;Stack Exchange;Stack Overflow f...		
	SOVisitFreq	SOAccount	\
ResponseId			
18472	A few times per month or weekly	Yes	
	SOPartFreq	SOComm	\
ResponseId			
18472	A few times per month or weekly	Yes, definitely	
		SOAI	\
ResponseId			
18472	This will make my job more easier for me to ha...		
	AISelect	AI Sent	AI Acc
		AI Ben	\
ResponseId			
18472	No, but I plan to soon	Favorable	NaN Somewhat trust
	AIToolInterested in Using	AIToolCurrently Using	\
ResponseId			
18472	NaN	NaN	
	AIToolNot interested in Using	AINextVery different	\
ResponseId			
18472	NaN	NaN	
	AINextNeither different nor similar	AINextSomewhat similar	\
ResponseId			
18472	NaN	NaN	
	AINextVery similar	AINextSomewhat different	TBranch \
ResponseId			
18472	NaN	NaN	Yes

	ICorPM	WorkExp	Knowledge_1	Knowledge_2	\
ResponseId					
18472	People manager	11.0	Agree	Agree	

		Knowledge_3		Knowledge_4	\
ResponseId					
18472	Neither agree nor disagree	Neither agree nor disagree			

		Knowledge_5	Knowledge_6	Knowledge_7	\
ResponseId					
18472	Neither agree nor disagree	Agree	Agree		

		Knowledge_8	Frequency_1	Frequency_2	\
ResponseId					
18472	Strongly agree	1-2 times a week	1-2 times a week		

		Frequency_3	TimeSearching	TimeAnswering	\
ResponseId					
18472	1-2 times a week	15-30 minutes a day	30-60 minutes a day		

		ProfessionalTech	\
ResponseId			
18472	DevOps function;Microservices;Automated testin...		

		Industry	SurveyLength	\
ResponseId				
18472	Advertising Services	Appropriate in length		

		SurveyEase	ConvertedCompYearly
ResponseId			
18472	Neither easy nor difficult	1083111.0	

```
[ ]: data['ConvertedCompYearly'].min()
```

```
[ ]: 1.0
```

```
[ ]: emp_data = data[(data['Employment']=='Employed') & data['ConvertedCompYearly']!=
↳ np.nan]
emp_data['ConvertedCompYearly'].min()
```

```
[ ]: 1.0
```

```
[ ]: min_salary = emp_data['ConvertedCompYearly'].quantile(0.2)
min_salary
```

```
[ ]: 37241.0
```

```
[ ]: data = data[emp_data['ConvertedCompYearly'] > min_salary]
```

```
[ ]: data['ConvertedCompYearly'].sort_values().head(40)
```

```
[ ]: ResponseId
71974      37267.0
2572       37267.0
1560       37275.0
28880      37286.0
28192      37325.0
70590      37325.0
4256       37325.0
53050      37325.0
57498      37325.0
39466      37325.0
75427      37325.0
73143      37325.0
37024      37325.0
60359      37325.0
82807      37325.0
52110      37325.0
53345      37329.0
68717      37348.0
83083      37348.0
64100      37348.0
73112      37348.0
58999      37348.0
32227      37350.0
22639      37359.0
78161      37432.0
32966      37455.0
14206      37481.0
13696      37481.0
65645      37481.0
83385      37481.0
39624      37481.0
47900      37481.0
16116      37481.0
38210      37481.0
76888      37481.0
65290      37481.0
39473      37481.0
61449      37481.0
17336      37481.0
66664      37481.0
Name: ConvertedCompYearly, dtype: float64
```

```
[ ]: #mean salaries
```

```
indian_devs = data[data['Country']=="India"]  
max_indian_salary = indian_devs['ConvertedCompYearly'].max()  
indian_devs[indian_devs['ConvertedCompYearly']==max_indian_salary]
```

```
[ ]:      Q120      MainBranch      Age \  
ResponseId  
72666      I agree  I am a developer by profession  25-34 years old  
  
      Employment RemoteWork CodingActivities \  
ResponseId  
72666      Employed, full-time  In-person      Hobby  
  
      EdLevel \  
ResponseId  
72666      Bachelor's degree (B.A., B.S., B.Eng., etc.)  
  
      LearnCode LearnCodeOnline \  
ResponseId  
72666      On the job training;School (i.e., University, ...      NaN  
  
      LearnCodeCoursesCert YearsCode  YearsCodePro      DevType \  
ResponseId  
72666      NaN      8      7.0  Developer, mobile  
  
      OrgSize      PurchaseInfluence      TechList \  
ResponseId  
72666      20 to 99 employees  I have some influence  Investigate  
  
      BuyNewTool Country \  
ResponseId  
72666      Start a free trial;Ask developers I know/work ...  India  
  
      Currency  CompTotal      LanguageHaveWorkedWith \  
ResponseId  
72666      INR\tIndian rupee  35000000.0  Dart;Objective-C;Solidity;Swift  
  
      LanguageWantToWorkWith DatabaseHaveWorkedWith \  
ResponseId  
72666      NaN      SQLite  
  
      DatabaseWantToWorkWith      PlatformHaveWorkedWith \  
ResponseId  
72666      NaN  Google Cloud;Microsoft Azure  
  
      PlatformWantToWorkWith WebframeHaveWorkedWith \  
ResponseId
```

72666	NaN	WordPress
WebframeWantToWorkWith MiscTechHaveWorkedWith \		
ResponseId		
72666	WordPress	SwiftUI
MiscTechWantToWorkWith \		
ResponseId		
72666	SwiftUI	
ToolsTechHaveWorkedWith \		
ResponseId		
72666	APT;Gradle;Homebrew;Kubernetes;npm;Pip;Unity 3D	
ToolsTechWantToWorkWith \		
ResponseId		
72666	APT;Gradle;Homebrew;Kubernetes;npm;Pip;Unity 3D	
NEWCollabToolsHaveWorkedWith \		
ResponseId		
72666	Android Studio;IntelliJ IDEA;Vim;Visual Studio...	
NEWCollabToolsWantToWorkWith \		
ResponseId		
72666	Android Studio;IntelliJ IDEA;Vim;Visual Studio...	
OpSysPersonal use \		
ResponseId		
72666	MacOS;Windows;Windows Subsystem for Linux (WSL)	
OpSysProfessional use OfficeStackAsyncHaveWorkedWith \		
ResponseId		
72666	MacOS;Windows	Confluence;Jira
OfficeStackAsyncWantToWorkWith \		
ResponseId		
72666	Jira	
OfficeStackSyncHaveWorkedWith \		
ResponseId		
72666	Google Meet;Microsoft Teams;Whatsapp;Zoom	
OfficeStackSyncWantToWorkWith \		
ResponseId		
72666	Google Meet;Microsoft Teams	
AISearchHaveWorkedWith \		

ResponseId			
72666	Bing AI;ChatGPT;Google Bard AI;Neeva AI		
	AISearchWantToWorkWith AIDevHaveWorkedWith \		
ResponseId			
72666	Bing AI;ChatGPT;Google Bard AI;Neeva AI	GitHub Copilot	
	AIDevWantToWorkWith	NEWSOSites \	
ResponseId			
72666	GitHub Copilot	Stack Overflow;Stack Exchange	
	SOVisitFreq SOAccount \		
ResponseId			
72666	Multiple times per day	Yes	
	SOPartFreq SOComm \		
ResponseId			
72666	Less than once per month or monthly	Yes, somewhat	
	SOAI AISelect \		
ResponseId			
72666	Currently SO is a wiki, providing AI generated...	Yes	
	AISent	AIAcc	AIBen \
ResponseId			
72666	Favorable	Greater efficiency	Somewhat distrust
	AIToolInterested in Using \		
ResponseId			
72666	Learning about a codebase;Project planning;Deb...		
	AIToolCurrently Using AIToolNot interested in Using \		
ResponseId			
72666	Writing code;Documenting code	NaN	
	AINextVery different AINextNeither different nor similar \		
ResponseId			
72666	NaN	NaN	
	AINextSomewhat similar AINextVery similar \		
ResponseId			
72666	NaN	NaN	
	AINextSomewhat different TBranch ICorPM \		
ResponseId			
72666	Writing code;Documenting code	Yes	Individual contributor

	WorkExp	Knowledge_1	Knowledge_2	Knowledge_3	\
ResponseId					
72666	8.0	Agree	Disagree	Neither agree nor disagree	

	Knowledge_4	Knowledge_5	Knowledge_6	Knowledge_7	\
ResponseId					
72666	Neither agree nor disagree	Agree	Agree	Agree	

	Knowledge_8	Frequency_1	Frequency_2	\
ResponseId				
72666	Neither agree nor disagree	1-2 times a week	1-2 times a week	

	Frequency_3	TimeSearching	TimeAnswering	\
ResponseId				
72666	1-2 times a week	30-60 minutes a day	15-30 minutes a day	

	ProfessionalTech	\
ResponseId		
72666	Microservices;Continuous integration (CI) and ...	

	Industry	SurveyLength	\
ResponseId			
72666	Information Services, IT, Software Development...	Too long	

	SurveyEase	ConvertedCompYearly
ResponseId		
72666	Easy	424091.0

```
[ ]: min_indian_salary = indian_devs['ConvertedCompYearly'].min()
indian_devs[indian_devs['ConvertedCompYearly']==min_indian_salary]
```

	Q120	MainBranch	Age	\
ResponseId				
39838	I agree I am a developer by profession	18-24 years old		
61296	I agree I am a developer by profession	25-34 years old		
63235	I agree I am a developer by profession	25-34 years old		
72060	I agree I am a developer by profession	25-34 years old		
73116	I agree I am a developer by profession	25-34 years old		
89009	I agree I am a developer by profession	25-34 years old		

	Employment	RemoteWork	\
ResponseId			
39838	Employed, full-time	Hybrid (some remote, some in-person)	
61296	Employed, full-time	Remote	
63235	Employed, full-time	Remote	
72060	Employed, full-time	Hybrid (some remote, some in-person)	
73116	Employed, full-time	Hybrid (some remote, some in-person)	

ResponseId	YearsCodePro	DevType \
39838	2.0	Other (please specify):
61296	8.0	Data scientist or machine learning specialist
63235	4.0	Developer, back-end
72060	9.0	Developer, front-end
73116	4.0	Developer, back-end
89009	6.0	Developer, full-stack

ResponseId	OrgSize	PurchaseInfluence \
39838	10,000 or more employees	I have little or no influence
61296	10,000 or more employees	I have little or no influence
63235	20 to 99 employees	I have some influence
72060	5,000 to 9,999 employees	I have some influence
73116	500 to 999 employees	I have little or no influence
89009	1,000 to 4,999 employees	I have little or no influence

ResponseId	TechList	BuyNewTool \
39838	NaN	Start a free trial;Ask developers I know/work ...
61296	NaN	Start a free trial;Ask developers I know/work ...
63235	Given a list	Start a free trial;Ask developers I know/work ...
72060	Given a list	Start a free trial;Read ratings or reviews on ...
73116	NaN	Start a free trial;Ask developers I know/work ...
89009	NaN	Start a free trial;Ask developers I know/work ...

ResponseId	Country	Currency	CompTotal \
39838	India	INR\tIndian rupee	3100000.0
61296	India	INR\tIndian rupee	3100000.0
63235	India	INR\tIndian rupee	3100000.0
72060	India	INR\tIndian rupee	3100000.0
73116	India	INR\tIndian rupee	3100000.0
89009	India	INR\tIndian rupee	3100000.0

ResponseId	LanguageHaveWorkedWith \
39838	Bash/Shell (all shells);Java;JavaScript;Python...
61296	Bash/Shell (all shells);C;C++;HTML/CSS;Java;Ja...
63235	JavaScript;Python
72060	JavaScript
73116	Go;Java;PHP
89009	HTML/CSS;Python;SQL;TypeScript

ResponseId	LanguageWantToWorkWith \
------------	--------------------------

39838	Bash/Shell (all shells);Java;JavaScript;Python...
61296	Rust
63235	NaN
72060	HTML/CSS;JavaScript;Python
73116	Java;PHP
89009	C#;HTML/CSS;Python;Rust;SQL;TypeScript

DatabaseHaveWorkedWith \

ResponseId

39838	PostgreSQL
61296	BigQuery;MongoDB;MySQL;Oracle;Snowflake;SQLite
63235	PostgreSQL;Redis
72060	Cloud Firestore;H2;MySQL
73116	Dynamodb;Elasticsearch;MongoDB
89009	PostgreSQL;SQLite

DatabaseWantToWorkWith \

ResponseId

39838	PostgreSQL;Redis
61296	Elasticsearch
63235	Elasticsearch;Snowflake
72060	Cloud Firestore;MongoDB;MySQL
73116	NaN
89009	PostgreSQL

PlatformHaveWorkedWith PlatformWantToWorkWith \

ResponseId

39838	NaN	NaN
61296	Amazon Web Services (AWS);Google Cloud	Vercel
63235	NaN	NaN
72060	Vultr	Vultr
73116	Amazon Web Services (AWS)	NaN
89009	Google Cloud	Google Cloud

WebframeHaveWorkedWith \

ResponseId

39838	Spring Boot
61296	Angular;AngularJS;Django;Express;FastAPI;Flask...
63235	Django;React
72060	jQuery;Next.js;React
73116	Spring Boot
89009	Node.js;React

WebframeWantToWorkWith \

ResponseId

39838	Spring Boot
61296	NaN

63235	Spring Boot
72060	Django;Next.js;React
73116	NaN
89009	FastAPI;Next.js;Node.js;React

MiscTechHaveWorkedWith \

ResponseId	
39838	Apache Spark
61296	Apache Spark;Hadoop;Hugging Face Transformers;...
63235	NaN
72060	NaN
73116	NaN
89009	Apache Spark

MiscTechWantToWorkWith \

ResponseId	
39838	Apache Kafka;Apache Spark;Pandas
61296	NaN
63235	NaN
72060	NaN
73116	NaN
89009	.NET (5+) ;Apache Kafka;Apache Spark;TensorFlow

ToolsTechHaveWorkedWith \

ResponseId	
39838	Ansible;Docker;Maven (build tool);Pip
61296	Cargo;Docker;Kubernetes;npm;Pip;Unity 3D;Unrea...
63235	Docker;Pip
72060	Webpack
73116	Ant;Dagger;Gradle
89009	npm;Vite

ToolsTechWantToWorkWith \

ResponseId	
39838	Ansible;Docker;Kubernetes;Maven (build tool);Pip
61296	NaN
63235	Kubernetes
72060	Webpack
73116	Ant;Dagger;Gradle
89009	Docker;npm;Vite

NEWCollabToolsHaveWorkedWith \

ResponseId	
39838	IntelliJ IDEA;PyCharm;Sublime Text;Visual Stud...
61296	Eclipse;IntelliJ IDEA;IPython;Jupyter Notebook...
63235	IPython;Visual Studio Code
72060	Eclipse;Visual Studio Code

73116	NaN
89009	Visual Studio Code

NEWCollabToolsWantToWorkWith \

ResponseId	
39838	IntelliJ IDEA;Jupyter Notebook/JupyterLab;PyCh...
61296	NaN
63235	NaN
72060	Eclipse;Visual Studio Code
73116	NaN
89009	Visual Studio Code

OpSysPersonal use OpSysProfessional use \

ResponseId		
39838	NaN	MacOS
61296	iOS;Ubuntu	Windows
63235	MacOS	MacOS
72060	MacOS;Ubuntu;Windows	MacOS;Ubuntu;Windows
73116	MacOS	MacOS
89009	MacOS	Red Hat;Windows

OfficeStackAsyncHaveWorkedWith \

ResponseId	
39838	NaN
61296	Asana;Confluence;Jira;Markdown File;Notion
63235	Clickup
72060	NaN
73116	NaN
89009	NaN

OfficeStackAsyncWantToWorkWith \

ResponseId	
39838	NaN
61296	NaN
63235	Confluence
72060	NaN
73116	NaN
89009	NaN

OfficeStackSyncHaveWorkedWith \

ResponseId	
39838	Mattermost;Microsoft Teams;Zoom
61296	Discord;Google Meet;Microsoft Teams;Slack;Tele...
63235	Google Meet;Slack;Zoom
72060	Slack;Zoom
73116	Slack
89009	Google Meet;Microsoft Teams;Whatsapp;Zoom

	OfficeStackSyncWantToWorkWith \
ResponseId	
39838	Mattermost;Zoom
61296	NaN
63235	NaN
72060	Google Chat;Microsoft Teams;Zoom
73116	Slack
89009	Google Meet;Microsoft Teams;Whatsapp;Zoom

	AIsearchHaveWorkedWith \
ResponseId	
39838	NaN
61296	Bing AI;ChatGPT;Perplexity AI
63235	ChatGPT;Google Bard AI;Quora Poe
72060	NaN
73116	NaN
89009	ChatGPT

	AIsearchWantToWorkWith	AIdevHaveWorkedWith \
ResponseId		
39838	NaN	GitHub Copilot
61296	NaN	GitHub Copilot;Tabnine
63235	NaN	GitHub Copilot
72060	NaN	NaN
73116	NaN	NaN
89009	Bing AI;ChatGPT;WolframAlpha;You.com	NaN

	AIdevWantToWorkWith \
ResponseId	
39838	GitHub Copilot
61296	NaN
63235	NaN
72060	NaN
73116	NaN
89009	NaN

	NEWSOSites \
ResponseId	
39838	Stack Overflow;Stack Exchange;Collectives on S...
61296	Stack Overflow;Stack Exchange
63235	Stack Overflow
72060	Stack Overflow;Stack Exchange
73116	Stack Overflow;Collectives on Stack Overflow
89009	Stack Overflow;Stack Exchange

SOVisitFreq SOAccount \

ResponseId		
39838	A few times per week	Yes
61296	Multiple times per day	Yes
63235	A few times per month or weekly	Yes
72060	A few times per week	Yes
73116	Multiple times per day	Yes
89009	Less than once per month or monthly	Yes

ResponseId		SOPartFreq	SOCComm \
39838	A few times per week	Yes, somewhat	
61296	Less than once per month or monthly	Yes, somewhat	
63235	I have never participated in Q&A on Stack Over...	Yes, somewhat	
72060	Less than once per month or monthly	Yes, somewhat	
73116	A few times per month or weekly	Neutral	
89009	Less than once per month or monthly	Yes, somewhat	

ResponseId		SOAI \
39838	Suggestion of answers already posted when writ...	
61296		NaN
63235	Probably have a chatbot experience and make it...	
72060	AI could actually help up with updating the ol...	
73116	Flagging incorrect answers or removing spam	
89009	Could use AI to run auto-generated tests for a...	

ResponseId	AISelect	AI Sent \
39838	No, but I plan to soon	Favorable
61296	Yes	Favorable
63235	Yes	Very favorable
72060	No, but I plan to soon	Unfavorable
73116	No, and I don't plan to	NaN
89009	Yes	Very favorable

ResponseId	AI Acc \
39838	NaN
61296	Increase productivity; Greater efficiency; Impro...
63235	Increase productivity; Greater efficiency
72060	NaN
73116	NaN
89009	Greater efficiency; Improve accuracy in coding

ResponseId	AIBen \
39838	Neither trust nor distrust

61296	Somewhat trust
63235	Somewhat trust
72060	Somewhat trust
73116	NaN
89009	Neither trust nor distrust

AIToolInterested in Using \

ResponseId	
39838	NaN
61296	Learning about a codebase;Project planning;Deb...
63235	Learning about a codebase;Project planning;Com...
72060	NaN
73116	NaN
89009	Learning about a codebase;Documenting code;Tes...

AIToolCurrently Using \

ResponseId	
39838	NaN
61296	Writing code;Documenting code
63235	Writing code;Documenting code;Debugging and ge...
72060	NaN
73116	NaN
89009	Writing code;Debugging and getting help

AIToolNot interested in Using AINextVery different \

ResponseId		
39838	NaN	NaN
61296	NaN	Documenting code
63235	NaN	Writing code
72060	NaN	NaN
73116	NaN	NaN
89009	Committing and reviewing code	Debugging and getting help

AINextNeither different nor similar AINextSomewhat similar \

ResponseId		
39838	NaN	NaN
61296	NaN	Writing code
63235	Debugging and getting help;Testing code	NaN
72060	NaN	NaN
73116	NaN	NaN
89009	NaN	NaN

AINextVery similar AINextSomewhat different TBranch \

ResponseId			
39838	NaN	NaN	Yes
61296	NaN	NaN	Yes
63235	NaN	Documenting code	Yes

72060	NaN	NaN	Yes
73116	NaN	NaN	Yes
89009	NaN	Writing code	Yes

	ICorPM	WorkExp	Knowledge_1 \
ResponseId			
39838	Individual contributor	2.0	Agree
61296	Individual contributor	7.0	Agree
63235	Individual contributor	5.0	Strongly agree
72060	Individual contributor	9.0	Disagree
73116	Individual contributor	3.0	Strongly agree
89009	Individual contributor	9.0	Agree

	Knowledge_2	Knowledge_3	Knowledge_4 \
ResponseId			
39838	Agree	Disagree	Agree
61296	Strongly disagree	Agree	Strongly agree
63235	Disagree	Strongly agree	Strongly agree
72060	Agree	Agree	Agree
73116	Strongly agree	NaN	Strongly agree
89009	Neither agree nor disagree	Agree	Agree

	Knowledge_5	Knowledge_6	Knowledge_7 \
ResponseId			
39838	Disagree	Agree	Strongly agree
61296	Strongly agree	Neither agree nor disagree	Agree
63235	Strongly agree	Strongly agree	Agree
72060	Disagree	Disagree	Agree
73116	Strongly agree	Strongly agree	Strongly agree
89009	Agree	Neither agree nor disagree	Agree

	Knowledge_8	Frequency_1	Frequency_2 \
ResponseId			
39838	Disagree	1-2 times a week	1-2 times a week
61296	Strongly agree	Never	6-10 times a week
63235	Disagree	1-2 times a week	1-2 times a week
72060	Disagree	Never	1-2 times a week
73116	NaN	1-2 times a week	6-10 times a week
89009	Agree	1-2 times a week	1-2 times a week

	Frequency_3	TimeSearching	TimeAnswering \
ResponseId			
39838	3-5 times a week	60-120 minutes a day	15-30 minutes a day
61296	1-2 times a week	Less than 15 minutes a day	30-60 minutes a day
63235	1-2 times a week	15-30 minutes a day	15-30 minutes a day
72060	1-2 times a week	30-60 minutes a day	15-30 minutes a day
73116	1-2 times a week	30-60 minutes a day	30-60 minutes a day

89009	1-2 times a week	60-120 minutes a day	15-30 minutes a day
-------	------------------	----------------------	---------------------

ProfessionalTech \

ResponseId

39838	DevOps function;Developer portal or other cent...
61296	DevOps function;Microservices;Automated testin...
63235	DevOps function;Developer portal or other cent...
72060	DevOps function;Microservices;Automated testin...
73116	NaN
89009	DevOps function;Automated testing;Continuous i...

Industry \

ResponseId

39838	Information Services, IT, Software Development...
61296	NaN
63235	Information Services, IT, Software Development...
72060	Information Services, IT, Software Development...
73116	Other
89009	Advertising Services

SurveyLength

SurveyEase \

ResponseId

39838	Appropriate in length	Easy
61296	Appropriate in length	Easy
63235	Appropriate in length	Easy
72060	Too long	Easy
73116	Too long	Neither easy nor difficult
89009	Appropriate in length	Easy

ConvertedCompYearly

ResponseId

39838	37562.0
61296	37562.0
63235	37562.0
72060	37562.0
73116	37562.0
89009	37562.0

```
[ ]: indian_devs[indian_devs['YearsCodePro']==7]['ConvertedCompYearly'].max()
```

```
[ ]: 424091.0
```

```
[ ]: usa_devs = data[data['Country']=="United States of America"]
      usa_devs['ConvertedCompYearly'].min()
```

```
[ ]: 38000.0
```

```
[ ]: data[data['LanguageHaveWorkedWith']=='Python']['ConvertedCompYearly'].mean()
```

```
[ ]: 106632.63660477454
```

```
[ ]: #using pandas Groupby to find salaries across countries  
data['ConvertedCompYearly'].sum()
```

```
[ ]: 4292045894.0
```

```
[ ]: data.groupby('Country').sum()['ConvertedCompYearly']
```

```
[ ]: Country  
Afghanistan                68000.0  
Albania                    500594.0  
Algeria                     37776.0  
Andorra                    546157.0  
Argentina                  8613974.0  
...  
Venezuela, Bolivarian Republic of... 650600.0  
Viet Nam                   1217971.0  
Yemen                      59917.0  
Zambia                     41122.0  
Zimbabwe                   174000.0  
Name: ConvertedCompYearly, Length: 143, dtype: float64
```

```
[ ]: data.groupby('Country').sum()['ConvertedCompYearly'].  
     ↪sort_values(ascending=False)
```

```
[ ]: Country  
United States of America    1.969483e+09  
United Kingdom of Great Britain and Northern Ireland 3.293658e+08  
Germany                    3.226609e+08  
Canada                     2.142454e+08  
Australia                  1.257912e+08  
...  
Rwanda                     4.416200e+04  
Brunei Darussalam          4.259600e+04  
Zambia                     4.112200e+04  
Saint Vincent and the Grenadines 4.000000e+04  
Algeria                    3.777600e+04  
Name: ConvertedCompYearly, Length: 143, dtype: float64
```

```
[ ]: data.groupby('RemoteWork').sum()['ConvertedCompYearly'].  
     ↪sort_values(ascending=False)
```

```
[ ]: RemoteWork  
Remote                2.134146e+09
```

```
Hybrid (some remote, some in-person)    1.752482e+09
In-person                               3.993938e+08
Name: ConvertedCompYearly, dtype: float64
```

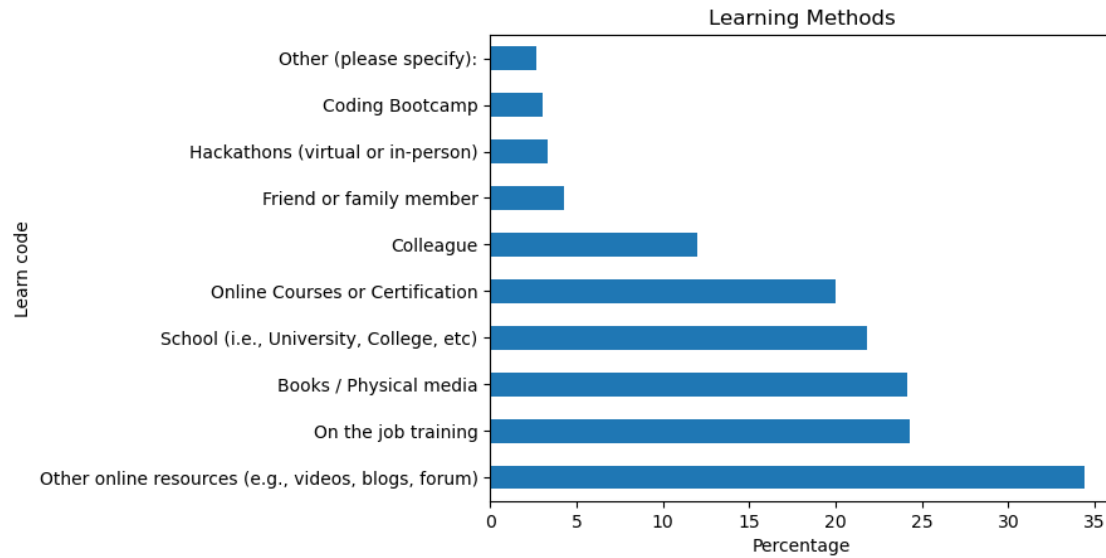
```
[ ]: data['RemoteWork'].value_counts()
```

```
[ ]: RemoteWork
Remote                               17368
Hybrid (some remote, some in-person)  16788
In-person                             4120
Name: count, dtype: int64
```

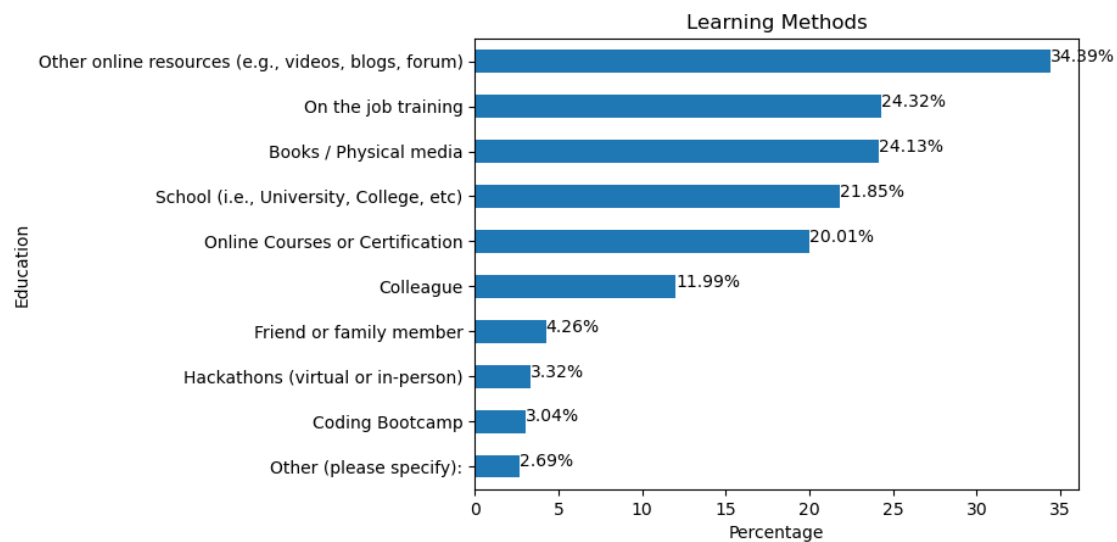
```
[ ]: #Visualizations
learn_methods = data['LearnCode'].str.split(';').explode()
method_counts = learn_methods.value_counts()
method_percentages = (method_counts / 89184) * 100
method_percentages
```

```
[ ]: LearnCode
Other online resources (e.g., videos, blogs, forum)    34.389577
On the job training                                   24.323870
Books / Physical media                                24.127646
School (i.e., University, College, etc)               21.846968
Online Courses or Certification                       20.009194
Colleague                                              11.994304
Friend or family member                               4.258611
Hackathons (virtual or in-person)                     3.315617
Coding Bootcamp                                       3.042025
Other (please specify):                               2.688823
Name: count, dtype: float64
```

```
[ ]: method_percentages.plot(kind='barh')
plt.title("Learning Methods")
plt.xlabel("Percentage")
plt.ylabel("Learn code")
plt.show()
```



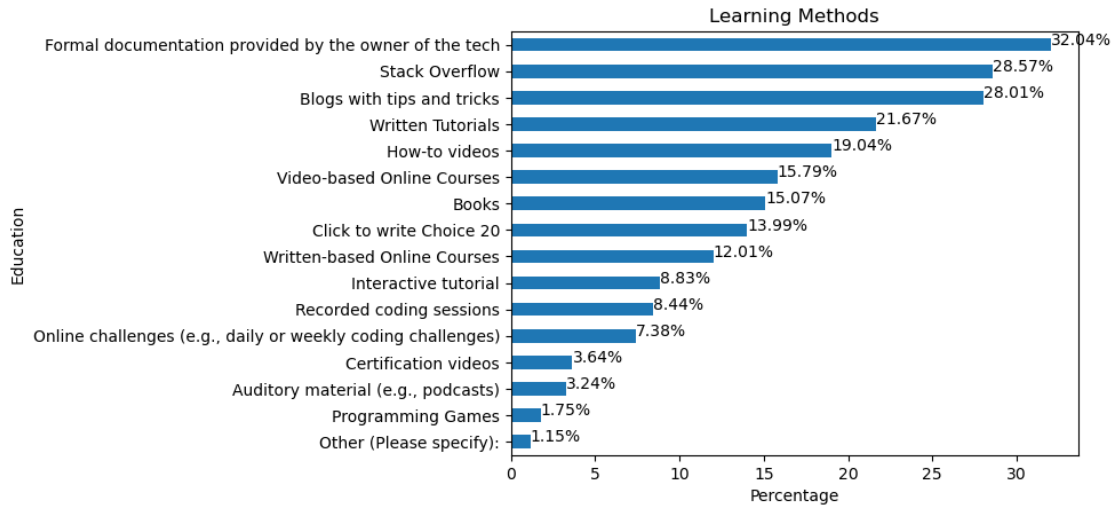
```
[ ]: method_percentages = method_percentages.sort_values()
method_percentages.plot(kind='barh')
plt.title("Learning Methods")
plt.xlabel("Percentage")
plt.ylabel("Education")
for index, value in enumerate(method_percentages):
    plt.text(value, index, f'{value:.2f}%')
plt.show()
```



```
[ ]: online_methods = data['LearnCodeOnline'].str.split(';').explode()
      online_method_counts = online_methods.value_counts()
      online_method_percentages = (online_method_counts / 89184) * 100
      online_method_percentages
```

```
[ ]: LearnCodeOnline
      Formal documentation provided by the owner of the tech      32.039379
      Stack Overflow      28.574632
      Blogs with tips and tricks      28.010630
      Written Tutorials      21.670928
      How-to videos      19.035926
      Video-based Online Courses      15.787585
      Books      15.071089
      Click to write Choice 20      13.986814
      Written-based Online Courses      12.008881
      Interactive tutorial      8.825574
      Recorded coding sessions      8.444340
      Online challenges (e.g., daily or weekly coding challenges)      7.380248
      Certification videos      3.643030
      Auditory material (e.g., podcasts)      3.239370
      Programming Games      1.749193
      Other (Please specify):      1.149309
      Name: count, dtype: float64
```

```
[ ]: online_method_percentages = online_method_percentages.
      ↪sort_values(ascending=True)
      online_method_percentages.plot(kind='barh')
      plt.title("Learning Methods")
      plt.xlabel("Percentage")
      plt.ylabel("Education")
      for index, value in enumerate(online_method_percentages):
          plt.text(value, index, f'{value:.2f}%')
      plt.show()
```

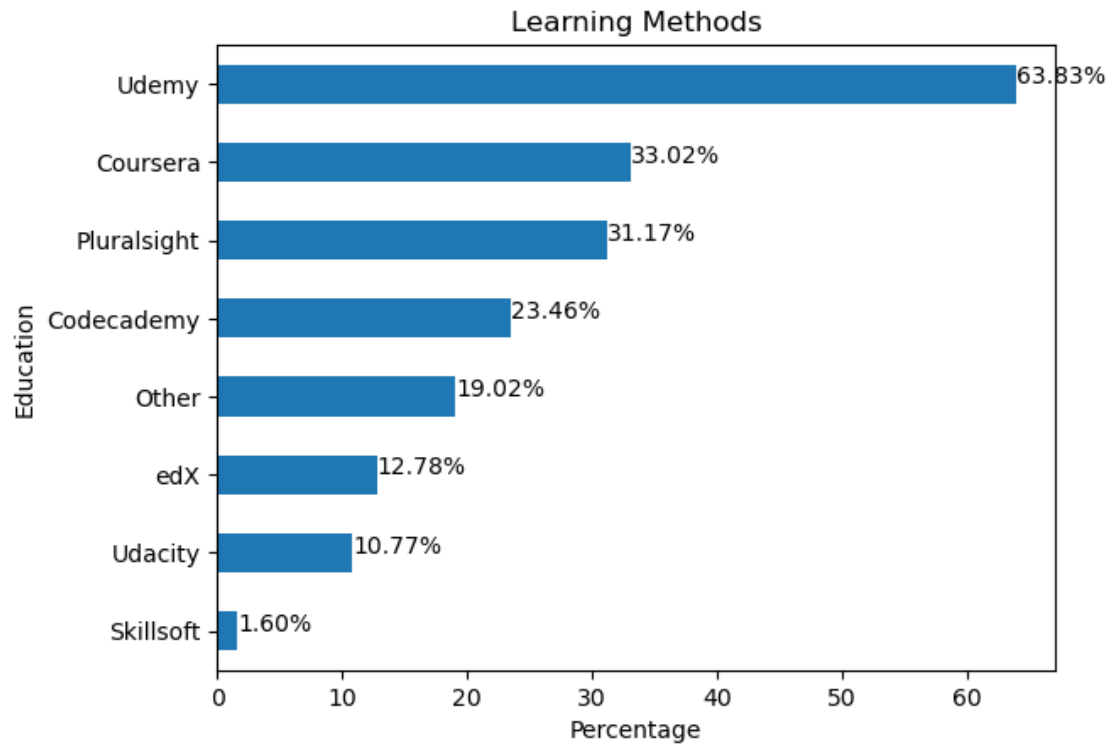


```
[ ]: #online learning platform percentages
online_platform_responses = data[data['LearnCodeCoursesCert'] != np.nan]
response_count = online_platform_responses['LearnCodeCoursesCert'].count()

online_platform = data['LearnCodeCoursesCert'].str.split(";").explode()
online_platform_counts = online_platform.value_counts()
online_platform_percentages = (online_platform_counts / response_count) * 100
online_platform_percentages
```

```
[ ]: LearnCodeCoursesCert
Udemy          63.829370
Coursera       33.021949
Pluralsight    31.173243
Codecademy     23.464855
Other          19.022733
edX            12.777633
Udacity        10.765613
Skillsoft      1.600470
Name: count, dtype: float64
```

```
[ ]: online_platform_percentages = online_platform_percentages.
      ↪sort_values(ascending=True)
online_platform_percentages.plot(kind='barh')
plt.title("Learning Methods")
plt.xlabel("Percentage")
plt.ylabel("Education")
for index, value in enumerate(online_platform_percentages):
    plt.text(value, index, f'{value:.2f}%')
plt.show()
```



[]: