What's the most common programmign language used by everyone?

```
In [1]: from tools import data_loader
import pandas as pd
```

Here we import the data_loader module to help us pre_load the data into dataframe and do some cleaning beforehand.

```
In [2]: df = data_loader.load_data("Developer Kaki _ Developer Salary Survey 2022 Result
In [3]: df.tech_used #The column we are interested to investigate
                                                 The Internet
Out[3]:
                  Angular, NestJS, Laravel, WordPress, NextJS
                                              Configura Magic
        3
                                     Terminal, Zendesk, slack
        4
                                                        .NET
        821
                                                   Coldfusion
        822
                             PHP, Python, React, React Native
        823
               C#,Java,powershell,azure,AWS,SQL,mongoDB,NOSQL
        824
                react, javascript, kotlin, html, css, nodejs
        825
        Name: tech_used, Length: 802, dtype: object
```

Get the frequency of each tech and sort them from most common to least common

```
In [4]: from tools import frequency_counter
In [5]: counter_info, wordcloud = frequency_counter.freq_counter(df)
# frequency counter will automatically use df.tech_used as reference
In [6]: counter_info.most_common()
```

```
Out[6]: [('python', 104),
          ('java', 102),
          ('javascript', 86),
          ('aws', 73),
          ('react', 68),
          ('php', 63),
          ('c#', 59),
          ('nodejs', 56),
          ('.net', 52),
          ('angular', 50),
          ('mysql', 43),
          ('docker', 39),
          ('laravel', 36),
          ('sql', 32),
          ('flutter', 30),
          ('vuejs', 29),
          ('typescript', 27),
          ('html', 26),
          ('css', 24),
          ('react native', 23),
          ('kubernetes', 23),
          ('js', 22),
          ('laptop', 22),
          ('kotlin', 20),
          ('gcp', 20),
          ('golang', 20),
          ('mongodb', 18),
          ('azure', 18),
          ('vue', 17),
          ('git', 16),
          ('reactjs', 16),
          ('android', 16),
          ('postgresql', 15),
          ('jquery', 14),
          ('swift', 14),
          ('spring boot', 14),
          ('mssql', 13),
          ('django', 13),
          ('jira', 13),
          ('ruby on rails', 13),
          ('asp.net', 12),
          ('.net core', 12),
          ('linux', 11),
          ('sql server', 10),
          ('c++', 10),
          ('spring', 10),
          ('jenkins', 10),
          ('android studio', 9),
          ('postgres', 9),
          ('node.js', 9),
          ('', 9),
          ('vue.js', 8),
          ('redis', 8),
          ('ruby', 8),
          ('go', 8),
          ('slack', 7),
          ('azure devops', 7),
          ('bitbucket', 7),
          ('github', 7),
          ('xcode', 7),
          ('graphql', 7),
          ('node js', 7),
          ('bash', 7),
```

```
('nestjs', 6),
('wordpress', 6),
('nextjs', 6),
('firebase', 6),
('cloud', 6),
('react js', 6),
('node', 6),
('angularjs', 6),
('hibernate', 5),
('spark', 5),
('coldfusion', 5),
('web', 5),
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('php laravel', 5),
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('springboot', 3),
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('nginx', 3),
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('c', 3),
('redux', 2),
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('visual studio', 2),
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('ml', 2),
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('computer', 2),
('confluence', 2),
('talend', 2),
('alicloud', 2),
```

```
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('phpstorm', 1),
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('aws serverless stack', 1),
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```

```
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```

```
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('jpa', 1),
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('facebook ads', 1),
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('react)', 1),
('qt', 1),
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('huge assortment', 1),
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('hdfs', 1),
('.net framework', 1),
('etl/elt tools', 1),
```

```
('aws redshift', 1),
('cloud computing (huawei', 1),
('aws etc)', 1)]
```

From above, we can see that "python" has the highest frequency count. Now, have a quick look at all rows containing the word "python"

salar	tech_used	
4000.	python	8
5100.	Python, Google Cloud platform	9
8000.	Python, flutter, c#, java, NoSql	13
3600.	Python, Aliyun, Airflow, Superset, Postgres	32
5700.	Java, Vuejs, python	39
5200.	Typescript, Python, React	56
3640.	Python, AWS, ML, DL	64
4000.	Python, Django, Flask, Vue, Quasar, AWS	65
6046.	node.js, react.js, typescript, postgresql, python	66
7750.	Python, Docker, Spark, Jupyter, Excel, Jira, C	69
7200.	React, Nodejs, Java, Python	70
12300.	Nodejs, aws, python	73
4000.	Python	74
4800.	Python, JavaScript, Jquery, Bootstrap, HTML, C	83
5150.	Linux, Shell, Python, SQL	85
3800.	AWS, Azure, Elastic, Python.	92
5100.	SQL & Python	102
5016.	python, mysql, mssql, shell	104
4750.	Java, python	113
5200.	Python, Pytorch.	131
5000.	JavaScript, Python	135
12500.	Python, Deep Learning	136
3500.	Node js, Django, React, Python	147
8300.	Python	149
3480.	Vue.js, Python, multiple GCP services	155
5367.	Python, PKS, Kubernetes, JS	157
5500.	Python, AWS, Docker, Apache Airflow, MLflow, D	159
18000.	Golang, Reactjs, Python, CI/CD, Kubernates, Re	168
6700.	Js, python	170
3600.	Python, Perl, Java, C++	177
5000.	.NET, Python, Power BI	199
10000.	python	219
3640.	Javascript, Python, SQL, Machine Learning	231
3600.	Python, AWS	242
3500.	Python and flutter	249

	tech_used	salary
250	Python,React,.Net	1400.0
251	Java, Python, nodejs, angular	6700.0
252	Java, python	7200.0
268	vue,angular,python,c#,js	5500.0
270	Python, JavaScript, GCP, Kubernetes	3800.0
272	Python , Javascript , MYSQL , PHP	4000.0
281	Reactjs, nextjs, python, docker, react native,	6500.0
297	AI/ML, Python, Dataiku, Hadoop, Oracle	26500.0
300	$\label{eq:VUEJS} \mbox{VUEJS, DOCKER, EXPRESSJS, MONGO, MYSQL, PYTHON}$	4200.0
309	Python, Nodejs	6800.0
313	GCP, python, sql,gitlab,kubernetes	5980.0
322	Python, SQL	6594.0
323	Hack (PHP), Python, JavaScript(React), GraphQL	10000.0
334	Python, SQL	3300.0
341	Kubernetes, Docker, Linux, Spark, Python, Git	4200.0
344	AWS, Python, JavaScript, NodeJS, VueJS	16000.0
349	Angular, C#, Python, Azure services	10000.0
357	Python, AWS	4200.0
359	Python, spark,	10000.0
360	Python	3800.0
361	python, tensorflow, django, postgresql, vuejs	9500.0
365	Python, AWS Stack, Pyspark, SQL, Tableau, MS E	5280.0
366	SQL, python, power bi	5000.0
368	JMP, Python	3500.0
371	C#, C++, Python, Web Dev, Backend, Data Distri	6500.0
390	Python, AWS	3700.0
395	Python, unix	10000.0
407	Python, R, SAS, SQL	14000.0
417	Python, JS, Cloud Run, PSQL, HTML, CSS, Futter	8000.0
420	Python, airflow	7500.0
426	php, python, js, django, laravel, raspberrypi,	2200.0
439	PHP, Python	5100.0
440	python,C#,java,mssql	5500.0
445	AWS, NextJS, typescript, javascript, python	3500.0
446	C++,Java,Angular,Python	7500.0

455 Azure, Python 3000.0 461 Python, Bash 2600.0 463 Python, SQL, google cloud, git, docker 4000.0 466 C#, Python, AWS 5000.0 467 Go,rabbitmq,nodejs,kafka,docker,python,typescript 16000.0 468 Python, Bash 8000.0 470 August 16000.0 488 Python, bash 8000.0 488 Python, Bash 8000.0 488 Python, Google Cloud, Airflow, Postgres 5150.0 5518 Python, Google Cloud, Airflow, Postgres 5150.0 5528 Python, R, Javascript, SQL, Elasticsearch, Pos 6600.0 5533 python, node.js, javascripts, mysql, etc 3600.0 554 Java, Python, Angular, Spring Boot, Flask, C# 6120.0 555 Python, Typescript, AWS 5000.0 557 GoLang, Python, Typescript 1000.0 559 Python, typescript 1000.0 559 Python, typescript 1000.0 611 Nodejs, PHP, Python 4000.0 613 MEAN stack, Python, Golang, SQL, tensorflow, K 8800.0 614 Python, React, JavaScript, HTML, CSS, Bash, Gi 3000.0 615 Python, Kubernetes, Azure, Docker 10300.0 616 C, Linux, Python, Networking 28400.0 617 Python, Java Script, Python, React, NestJS 6000.0 618 Typescript, JavaScript, Python, React, NestJS 6000.0 619 Python, Java Script, Python, React, NestJS 6000.0 610 AWS, Python, PHP 15000.0 611 Python, Java Script, Python, React, NestJS 6000.0 612 Python, Java Script, Python, React, NestJS 6000.0 613 Kubernetes, Python, Docker, Nifi, Kafka, Azure 10300.0 614 Python, Go 10000.0 615 Python, Javascript 9700.0 616 Python, Javascript 9700.0 617 Python, Javascript 9700.0 618 Python, Javascript 9700.0 619 Python, Javascript 9700.0 610 Python, Javascript 9700.0		tech_used	salary
461 Python, Bash 2600.0 463 Python, SQL, google cloud, git, docker 4000.0 466 C#, Python, AWS 5000.0 467 Go,rabbitmq,nodejs,kafka,docker,python,typescript 16000.0 468 Python, Bash 8000.0 488 Python, Bash 8000.0 488 Python, Google Cloud, Airflow, Postgres 5150.0 5518 Python, Google Cloud, Airflow, Postgres 5150.0 5528 Python, R, Javascript, SQL, Elasticsearch, Pos 6600.0 5533 python, node.js, javascripts, mysql, etc 3600.0 5558 Java, Python, Angular, Spring Boot, Flask, C# 6120.0 5570 Python, Typescript, AWS 5000.0 5572 GoLang, Python, Javascript 6900.0 5595 Python, typescript 11000.0 5597 FE (Mobile): java, swift BE: ruby, postgresq 3200.0 611 Nodejs, PHP, Python 4000.0 613 MEAN stack, Python, Golang, SQL, tensorflow, K 8800.0 614 Python, React, JavaScript, HTML, CSS, Bash, Gi 3000.0 615 Python, Kubernetes, Azure, Docker 10300.0 616 C, Linux, Python, Networking 28400.0 638 Typescript, JavaScript, Python, React, NestJS 6000.0 640 AWS, Python, PHP 15000.0 641 Python, Java 13000.0 652 Python, Golang Python, Golang Python, Golang Python, Golang Python, Golang Python, Golang Python, PHP 15000.0 668 Python, Golang Python, React, NestJS 6000.0 668 Python, Docker, Nifi, Kafka, Azure 10300.0 668 Python, Golang Python, Sature, Docker Python, Java 13000.0 668 Python, Golang Python, G	448	Python	3300.0
463 Python, SQL, google cloud, git, docker 4000.0 466 C#, Python, AWS 5000.0 467 Go,rabbitmq,nodejs,kafka,docker,python,typescript 16000.0 468 Python, bash 8000.0 468 Python, Google Cloud, Airflow, Postgres 5150.0 5518 Python, Google Cloud, Airflow, Postgres 5150.0 5528 Python, R, Javascript, SQL, Elasticsearch, Pos 6600.0 5533 python, node.js, javascripts, mysql, etc 3600.0 5558 Java, Python, Angular, Spring Boot, Flask, C# 6120.0 5570 Python, Typescript, AWS 5000.0 5572 GoLang, Python, Javascript 6900.0 5573 Python, typescript 11000.0 5574 FE (Mobile): java, swift BE: ruby, postgresq 3200.0 6614 Python, React, JavaScript, HTML, CSS, Bash, Gi 3000.0 6615 Python, Kubernetes, Azure, Docker 10300.0 6616 C, Linux, Python, Networking 28400.0 6617 Python, Kubernetes, Azure, Docker 10300.0 6618 Typescript, JavaScript, Python, React, NestJS, 6000.0 662 Python 5319.0 663 Python, Go 10000.0 663 Python, Go 10000.0 664 Python, Go 10000.0 665 Python, Go 10000.0 666 Python, Go 10000.0 667 Python, Java 13000.0 668 Python, Go 10000.0 668 Python, Go 10000.0 669 Python, Go 10000.0 670 Python	455	Azure, Python	3000.0
Go,rabbitmq,nodejs,kafka,docker,python,typescript 16000.6 Go,rabbitmq,nodejs,kafka,docker,python,typescript 16000.6 Go,rabbitmq,nodejs,kafka,docker,python,typescript 16000.6 GO,rabbitmq,nodejs,kafka,docker,python,typescript 16000.6 GO,rabbitmq,nodejs,kafka,docker,python, typescript 16000.6 GO,rabbitmq,nodejs,kafka,docker,python, dayngo, .net 1600.6 GO,rabbitmq,nodejs,kafka,docker,python, postgres 1600.6 GO,rabbitmq,nodejs,kafka,docker,python, dayngo, .net 1600.6 GO,rabbitmq,nodejs,kafka,docker,python, python, python, galogo, .net 1600.6 GO,rabbitmq,nodejs,kafka,docker,python, python, python, python, python, python, python, python, python, python, galogo, .net 1600.6 GO,rabbitmq,nodejs,kafka,docker,python, python, python, go, python 1600.6 GO,rabbitmq,nodejs,kafka,docker,python, python, python, python, python, python, go, python 1600.6 GO,rabbitmq,nodejs,kafka,docker,python,python,react 1600.6 GO,rabbitma,docker, python,	461	Python, Bash	2600.0
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FE (Mobile): java, swift BE: ruby, postgresq 3200.0 Nodejs, PHP, Python 4000.0 MEAN stack, Python, Golang, SQL, tensorflow, K 8800.0 Python, React, JavaScript, HTML, CSS, Bash, Gi 3000.0 Python, Kubernetes, Azure, Docker 10300.0 Java, Bash, Python 3400.0 C, Linux, Python, Networking 28400.0 Typescript, JavaScript, Python, React, NestJS, 6000.0 AWS, Python, PHP 15000.0 Python, Java 13000.0 Python, Go 10000.0 Rubernetes, Python, Docker, Nifi, Kafka, Azure 10300.0 Kubernetes, Python, Docker, Nifi, Kafka, Azure 10300.0 angular, net, html, css, js, ts, tsql, python, react 7200.0 Python, Javascript 9500.0	72	GoLang, Python, Javascript	6900.0
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, , , , , , , , , , , , , , , , , , ,	110	angular,.net,html,css,js,ts,tsql,python,react	7200.0
Python, Flask, Nodejs 5000.0	723	Python, Javascript	9500.0
	731	Python, Flask, Nodejs	5000.0

	tech_used	salary
775	GCP, Azure, Python, Vue, JavaScript, ML, SQL	5000.0
801	C#,C++,Qt,Python	4400.0
811	Airflow, Python, HDFS, Pyspark	4550.0
822	PHP, Python, React, React Native	7000.0

Generate a wordcloud for visualisation

```
In [8]: import matplotlib.pyplot as plt
   plt.figure()
   plt.imshow(wordcloud)
   plt.axis("off")
   plt.show()
```

