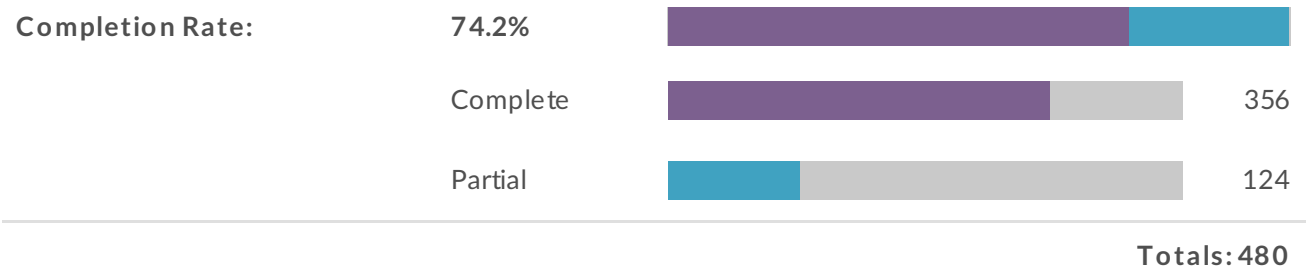
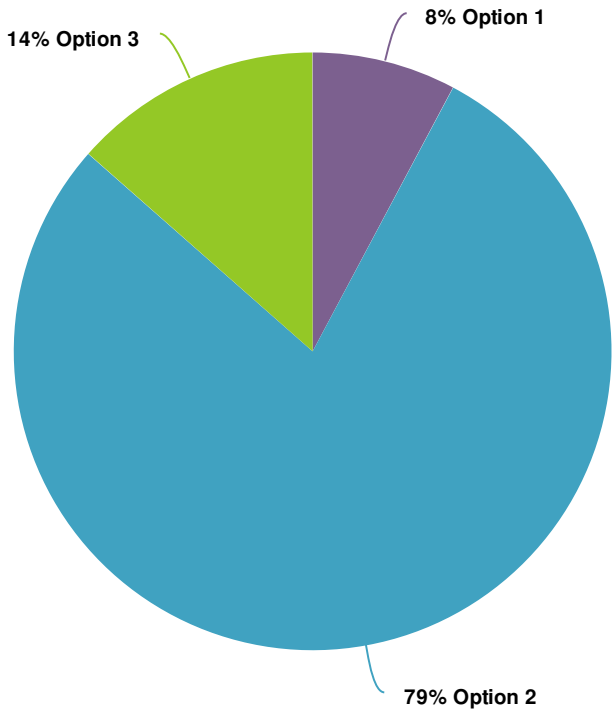
Report for Protection of Code from Power Interrupts: Questionnaire

Response Counts



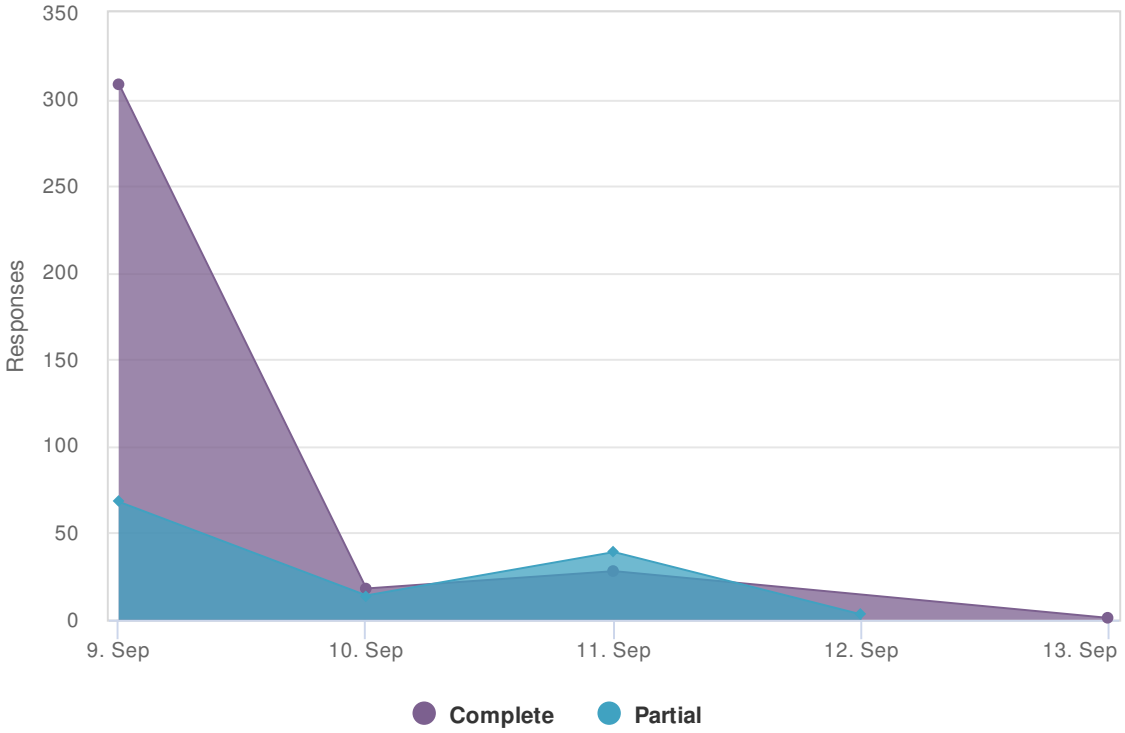
Code Instrumentation for IntermittencyWhen we want to transform this simple swap operation to be able to continue where it left off, it needs to be significantly modified.This example is to illustrate the steps required and is therefore not a practical real world example, as transforming every line into a task is often not required.There is no supported way in Python to create a checkpoint and continue on, therefore we split the program into tasks that are assumed to be atomic (they have to be completed before the power fails).After every task (in this case every line in the original swap program is transformed into a separate task) the state of the program and it's variables is stored. And each time a call to `restore()` is made the program continues with the next task. When `checkpoint()` is called the state of the program is stored in non-volatile memory (memory that keeps data even if power is not applied).Bellow there are 3 versions of the same swap program transformed into a task based one. Two of them contain errors in the transformation and one is correct. Please take some time to find which one of the 3 options is the correct one.Option 1Option 2Option 3Please select the option you think is correct.



Value	Percent	Responses
Option 1	7.8%	29
Option 2	78.7%	292
Option 3	13.5%	50

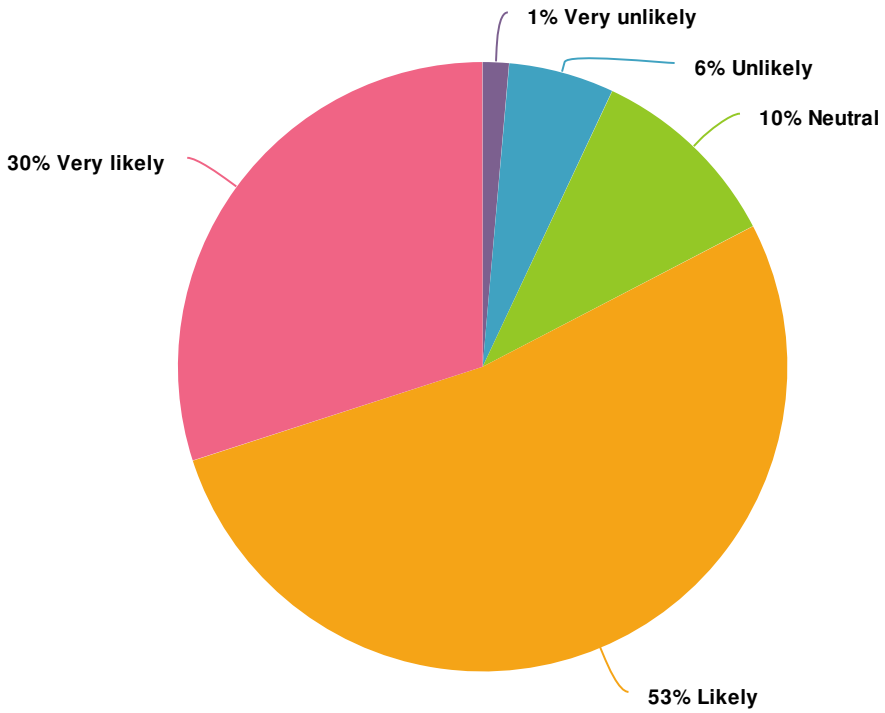
Totals: 371

Timeline



Instrumentation question time

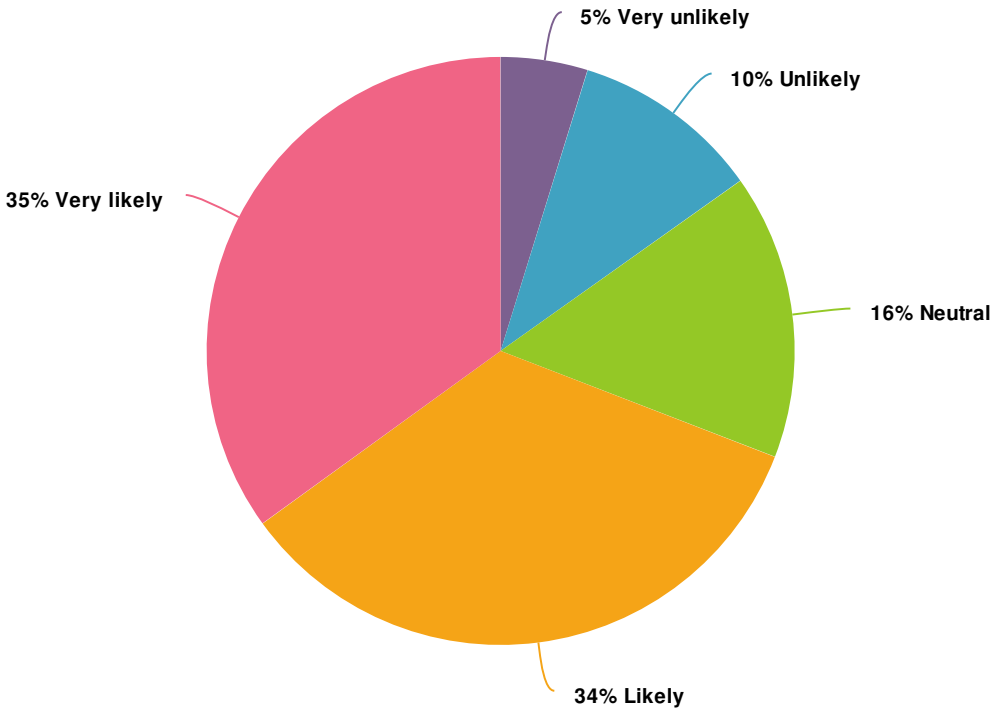
Do you think that a system taking care of program correctness, despite power failures, would help?



Value	Percent	Responses
Very unlikely	1.4%	5
Unlikely	5.6%	20
Neutral	10.4%	37
Likely	52.7%	188
Very likely	30.0%	107

Totals: 357

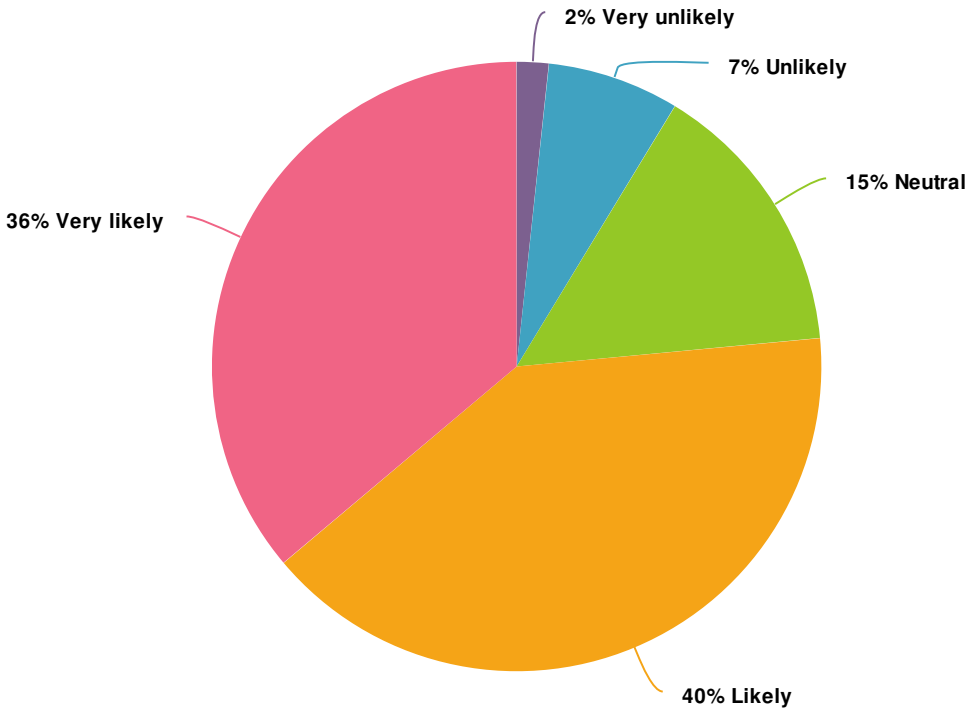
Do you think that a system taking care of program correctness, despite power failures, would save your time as a programmer?



Value	Percent	Responses
Very unlikely	4.8%	17
Unlikely	10.4%	37
Neutral	15.7%	56
Likely	34.2%	122
Very likely	35.0%	125

Totals: 357

Do you think that rewriting a (Python) code such that it will be correct, despite power failures, is a time-consuming task for a programmer?

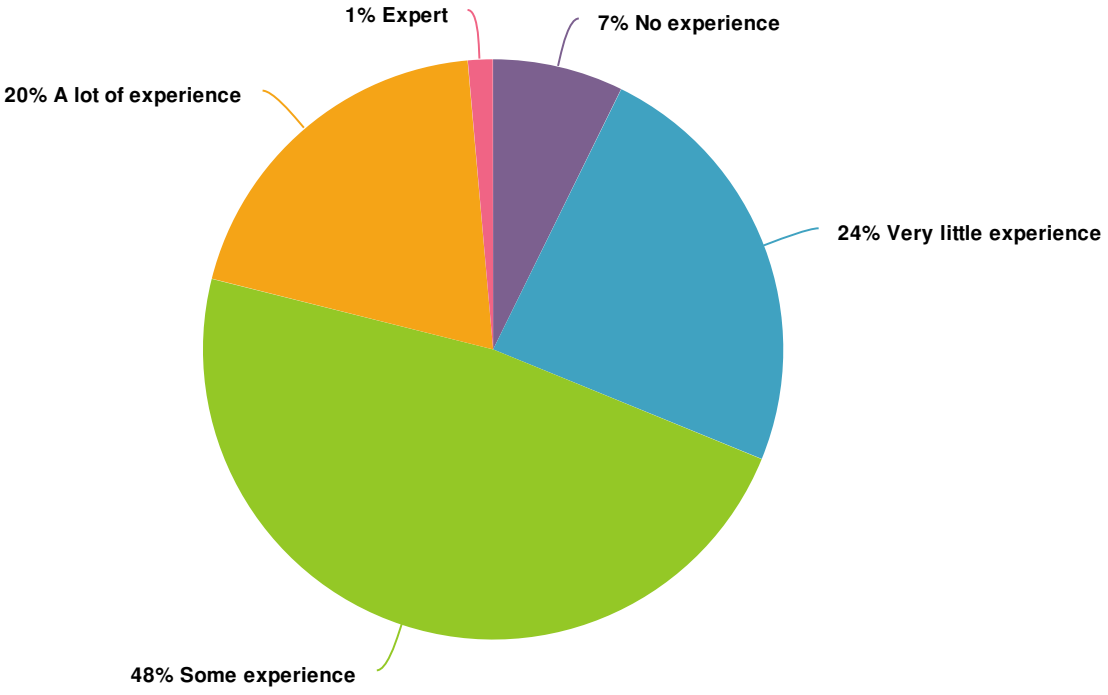


Value	Percent	Responses
Very unlikely	1.7%	6
Unlikely	7.0%	25
Neutral	14.8%	53
Likely	40.3%	144
Very likely	36.1%	129

Totals: 357

Do you have any remarks about the problem of intermittent computing?

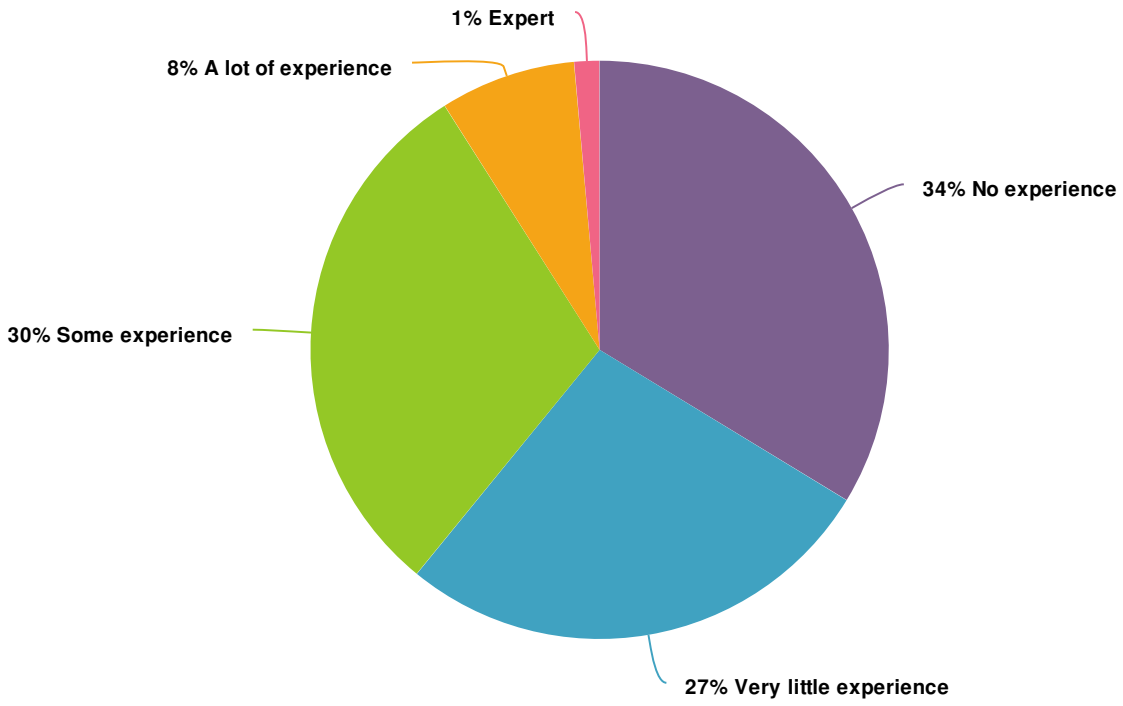
Considering any programming language: what is your programming experience?



Value	Percent	Responses
No experience	7.3%	26
Very little experience	23.9%	85
Some experience	47.8%	170
A lot of experience	19.7%	70
Expert	1.4%	5

Totals: 356

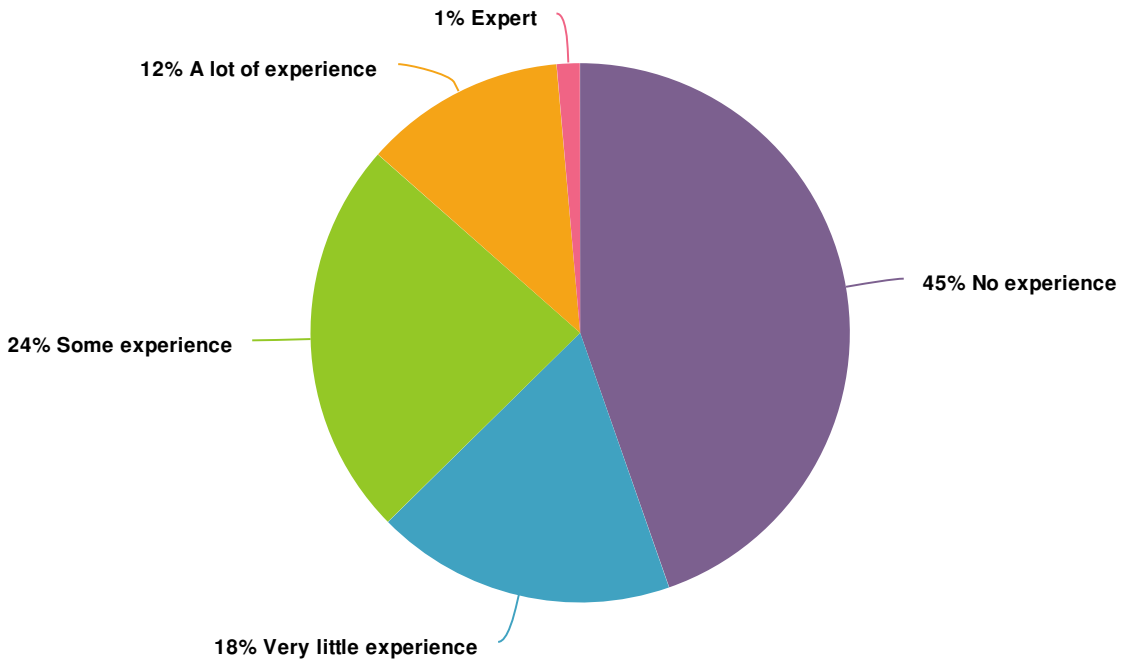
What is your Python language programming experience?



Value	Percent	Responses
No experience	33.7%	120
Very little experience	27.2%	97
Some experience	30.1%	107
A lot of experience	7.6%	27
Expert	1.4%	5

Totals: 356

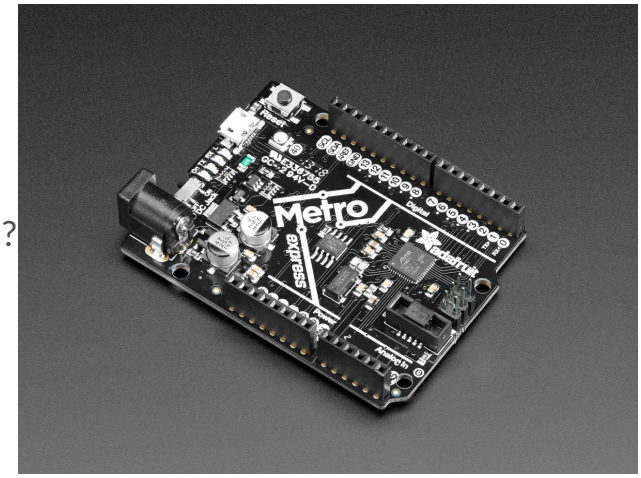
What is your C/C++ programming experience?

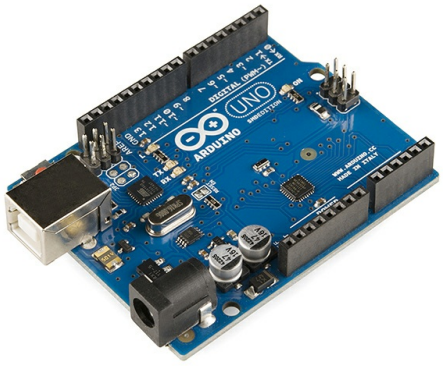


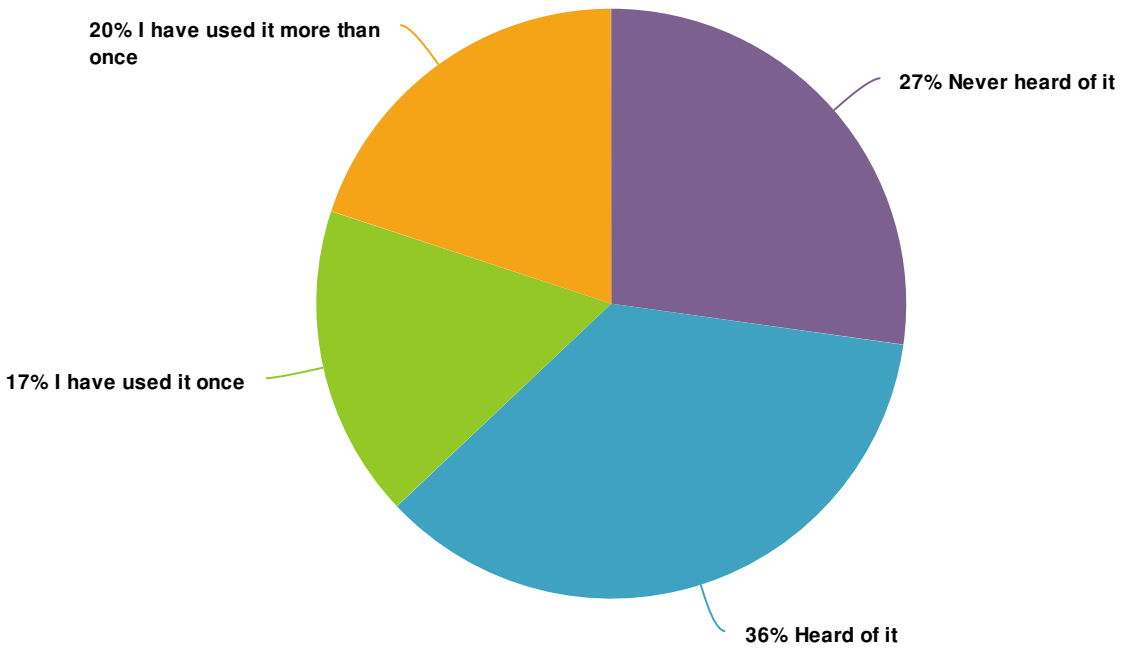
Value		Percent	Responses
No experience		44.7%	159
Very little experience		18.0%	64
Some experience		23.9%	85
A lot of experience		12.1%	43
Expert		1.4%	5

Totals: 356

Have you ever used any of the open source microcontroller boards such as Adafruit METRO (left) or Arduino Uno (right)?



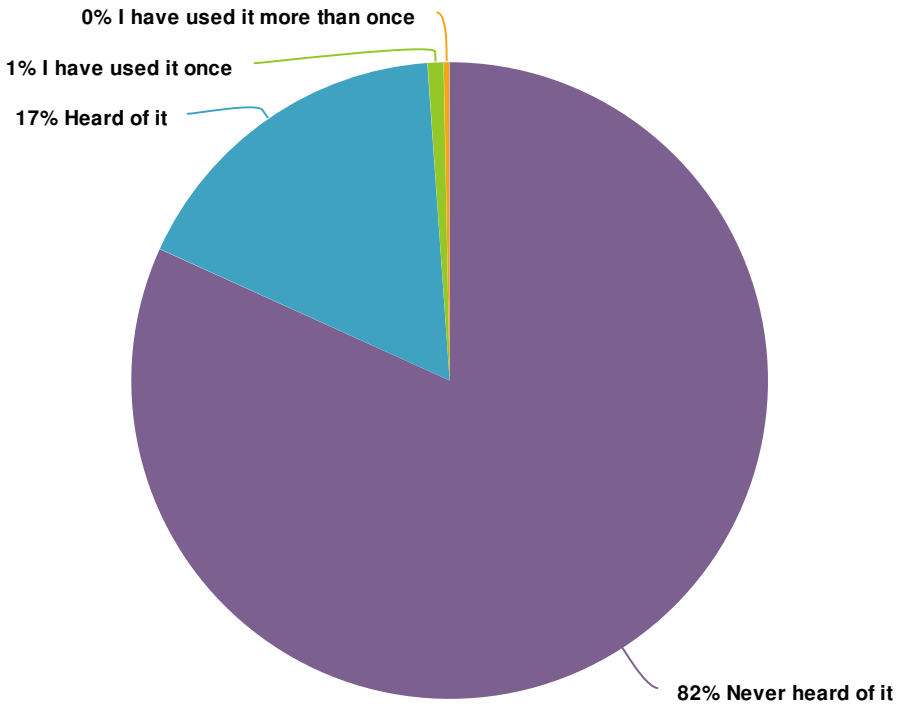




Value	Percent	Responses
Never heard of it	27.2%	97
Heard of it	35.7%	127
I have used it once	17.1%	61
I have used it more than once	19.9%	71

Totals: 356

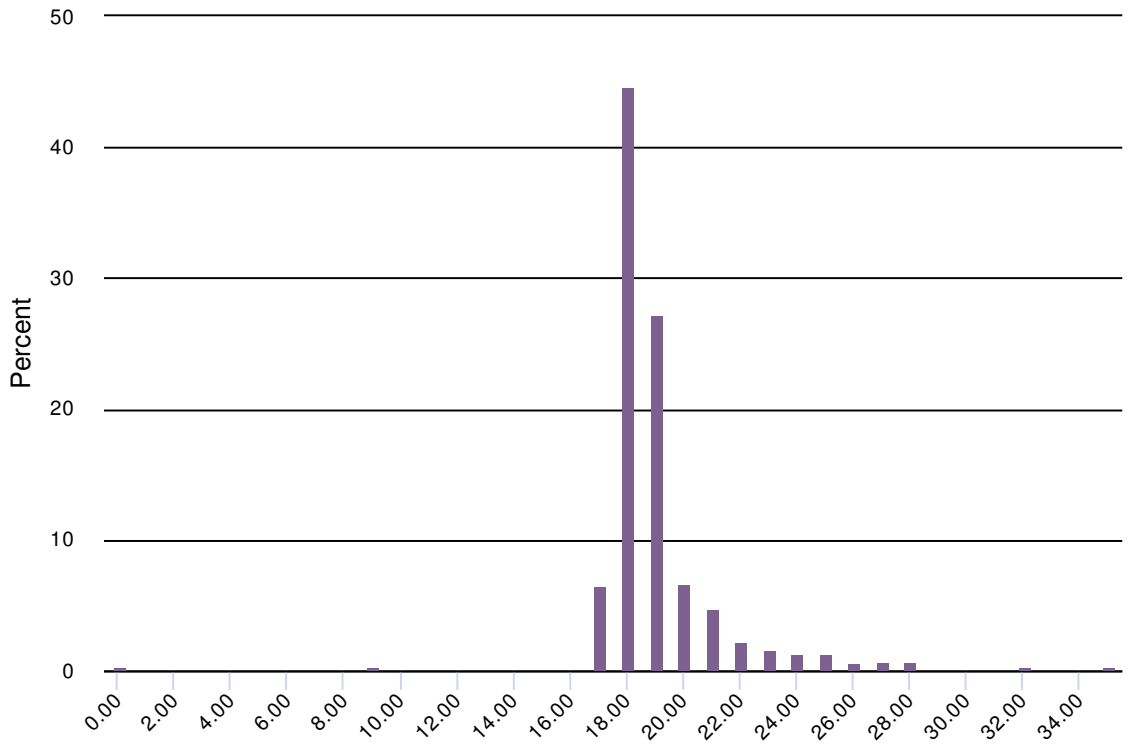
Have you ever used CircuitPython before?



Value	Percent	Responses
Never heard of it	81.7%	291
Heard of it	17.1%	61
I have used it once	0.8%	3
I have used it more than once	0.3%	1

Totals: 356

What is your age?



Statistics

Min	0
Max	35
Sum	6,785.0
Average	19.1
StdDev	2.5
Total Responses	356