

Programming languages used in the selected projects

Project	Name	C/C++	C#	Clojure	CoffeeScript	Erlang	Go	Haskell	Java	JavaScript	Kotlin	Objective-C	Perl	PHP	Python	Ruby	Scala	Swift	TypeScript	#PL
P1	Airavata	x							X					x	x				x	5
P2	Ambari	x	x		x				X	x			x	x	x	x	x		x	11
P3	Arrow	X	x				x		x	x		x			x	x			x	9
P4	Avro	x	x						X	x			x	x	x	x				8
P5	Beam	x					x		X	x	x				x	x			x	8
P6	Carbondata	x	x						x						x		X			5
P7	Cloudstack	x	x						X	x			x		x	x				7
P8	Couchdb	x				X			x	x					x	x				6
P9	Dispatch	x							x	x					X				x	5
P10	Ignite	x	x						X	x				x	x		x		x	8
P11	Impala	X							x	x					x	x				5
P12	Kafka	x	x	x			x		X	x				x	x	x	x			10
P13	Kylin	x			x				X	x					x		x			6
P14	Ranger	x							X	x					x					4
P15	Reef	x	x						X	x					x		x			6
P16	Spark	x							x	x					x	x	X			6
P17	Subversion	X	x						x				x		x	x				6
P18	Thrift	X	x			x	x	x	x	x		x	x	x	x	x		x	x	14
P19	Usergrid	x	x						X	x		x	x	x	x	x	x	x		11
P20	Zeppelin				x				X	x					x		x		x	6
-	#Project	19	11	1	3	2	4	1	20	17	1	3	6	7	20	12	9	2	8	-
-	#Project X	4	0	0	0	1	0	0	12	0	0	0	0	0	1	0	2	0	0	-

This table shows the PLs used in the selected projects. **X** denotes that the PL in the corresponding column is the main PL of the project in the corresponding row, #Project denotes the number of projects using the PL in the corresponding column, #Project**X** denotes the number of projects using the PL in the corresponding column as the main PL, and #PL denotes the number of PLs used by the project in the corresponding row. As we can see from this table, Java and Python are used in all the 20 projects; C/C++, JavaScript, Ruby, C# are also used in most projects; and Java is the main PL of 12 projects, followed by C/C++ which is the main PL of 4 projects. Besides, all projects are written in 4 or more PLs, with a maximum of 14 PLs for project Thrift, followed by project Ambari and Usergrid in 11 PLs.