Kotlin

Evaluating Programming Language

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- Job Positions
- Learning Cost
- Peer Scale
- Reliability
- Syntex Design
- Hierarchy of programming languages
- Diversity of Libraries
- Project Concept

Job Positions

- Measured by the amount of job openings on recruiting websites.(eg, Linkedin)
- ~11/03/2020

Job Openings	Java	Python	Javascript	Kotlin	Swift	C++
U.S.	95,849	96,429	74,085	3,457	9,593	44,132
Global	375,954	304,169	333,863	18,103	103,581	175,192

Learning Cost

- Number/price of tutorials/courses on training websites (eg. Udemy, Coursera).
- Number of books titled as “(Language Name) Programming” on Amazon.

	Java	Python	Javascript	Kotlin	Swift	C++
# of courses titled of “XX Programming” on Coursera	568	588	180	9	25	162
# of books titled of “XX Programming” on Amazon	10k+	7k+	5k+	257	985	9K+
Price for the highest rated courses titled of “XX Programming” on Udemy	$94.99	$74.99	$99.99	$94.99	$94.99	$94.99

Peer Scale

- Number of projects on GitHub.
- Number of relative questions posted on Stackoverflow.
- Number of Linkedin members that using the language.

	Java	Python	Kotlin	Swift	C++
GitHub Projects	990,342	1,085,497	93,111	149,068	205,275
Stackoverflow Questions	1,728,264	1,574,365	48,183	281,708	698,500
Linkedin Members	~9,990,000	~5,520,000	~135,000	~610,000	~5,820,000

Reliability

- Measurements taken by the language against potential errors.
- Type Checking
- Exception Handling

Kotlin	**Availability**
Type Checking	Yes
Exception Handling	Yes

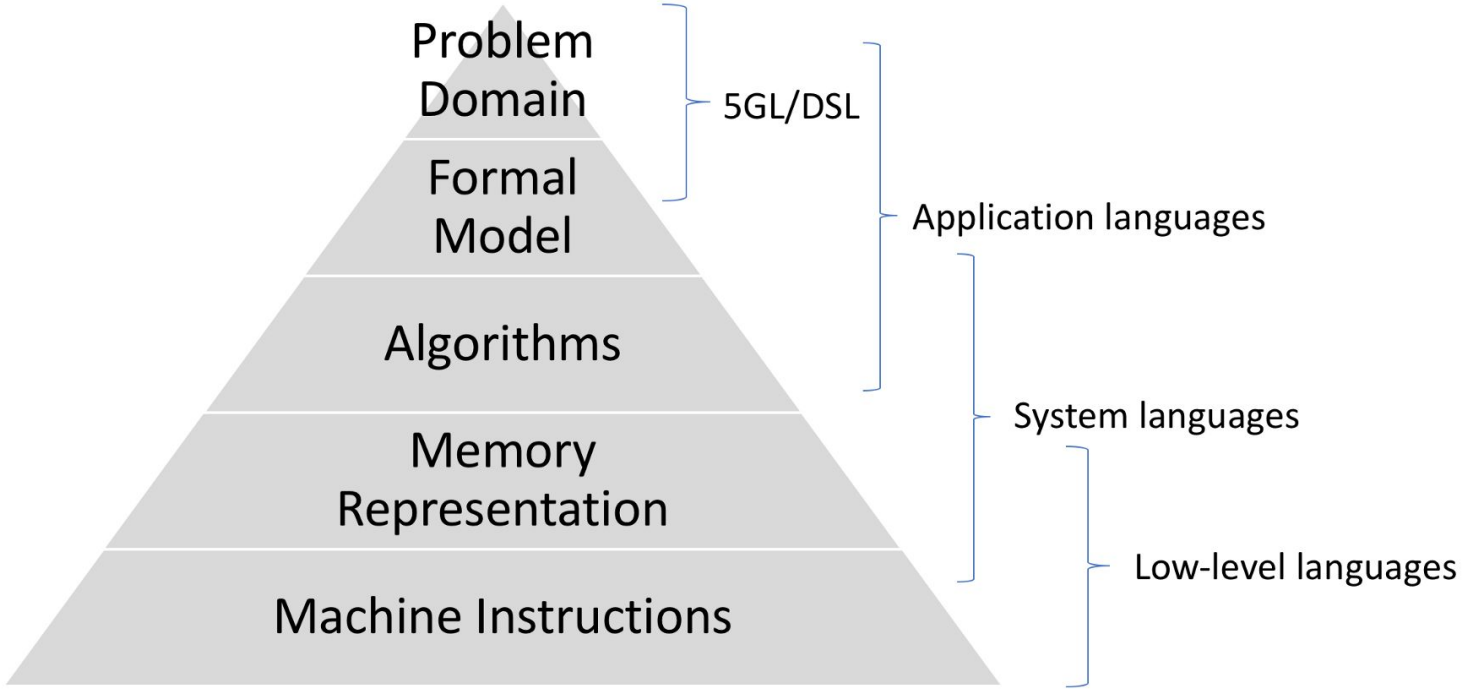
Syntex Design

- Major factor related to readability
- Number of reserved words for identifier names
- Number of data types
- Number of escape sequence codes
- Number of operators
- Number of decision-make statements
- Case sensitivity

Syntax Design

Criteria	Data
Number of reserved words for Identifiers	28
Number of data types	10
Number of escape sequence codes	8
Number of operators	39
Number of decision-making statements	5
Case Sensitivity	Yes

Generations of Programming Language



System/Application Programming Language

Application Programming Language(Kotlin)	System Programming Language(C++)
General purpose, cannot cater to a specific domain	Focus on efficient algorithms and optimal memory representation.
Apt at expressing various domains and writing various algorithm to solve the problem.	Might provide the ability to specify concrete machine instructions to manipulate data.
Less flexibility in memory representation and rarely support direct control of emitted machine instructions.	When writing the code, developers can think about the memory layout, parameter passing, and memory reclamation.
Limit the ability to fine-tune the code, but better focus on an application problem on hand.	Heavier mental burden on lower-level, such as how much time on copying and moving, ownership and borrowing, but provide better tuned codes.

Diversity of Libraries

I/O

Networking

Math

Collections

Regular Expressions

Logging

Graphics and UI

Text Formatting

XML

Remote Method Invocation

Security Database

Reflection

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About our project

Project name: Android GO

Description: An Android mobile app that provides user the function to ping the parking location on the map and navigate from users current location to the location of vehicle.

Keywords: Kotlin, Android, Navigation.

Design and features.

Google Map API - Provide location service and embed the map into the application

Direction API - Provide navigation service and show the route on the map between users' current location and target location.