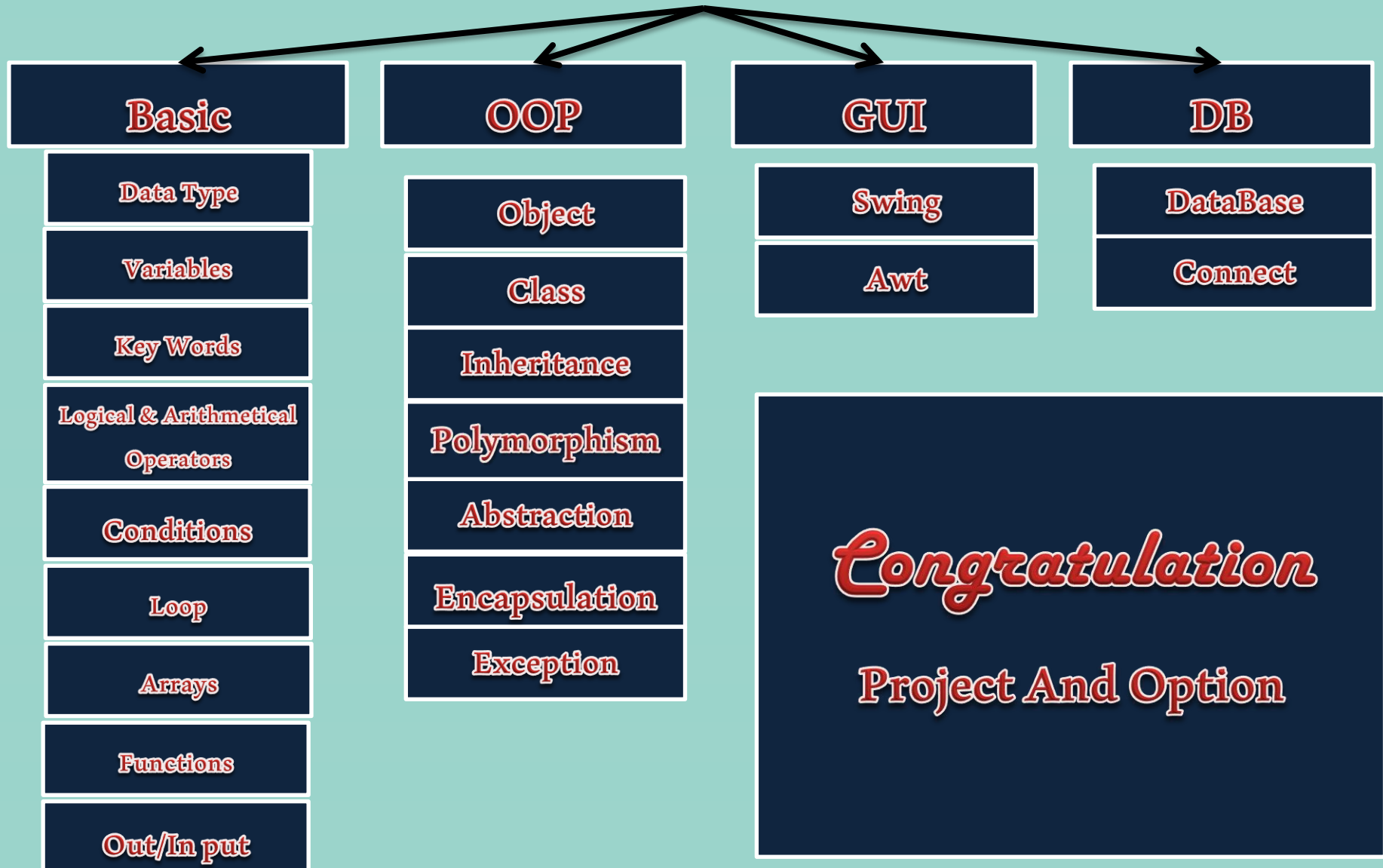


# Java SE

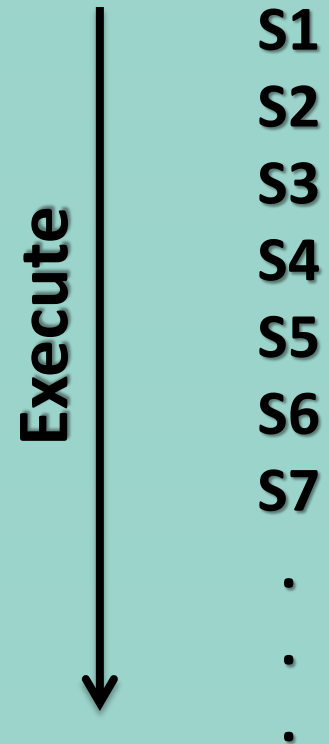


# Introduction

- **Program** : is a set of instructions that the computer can understand and execute.

- **Step to execute instructions :**

step by step Start to end —→ Roots



# Steps execute Program

- Write the program to find roots of Quadratic equation

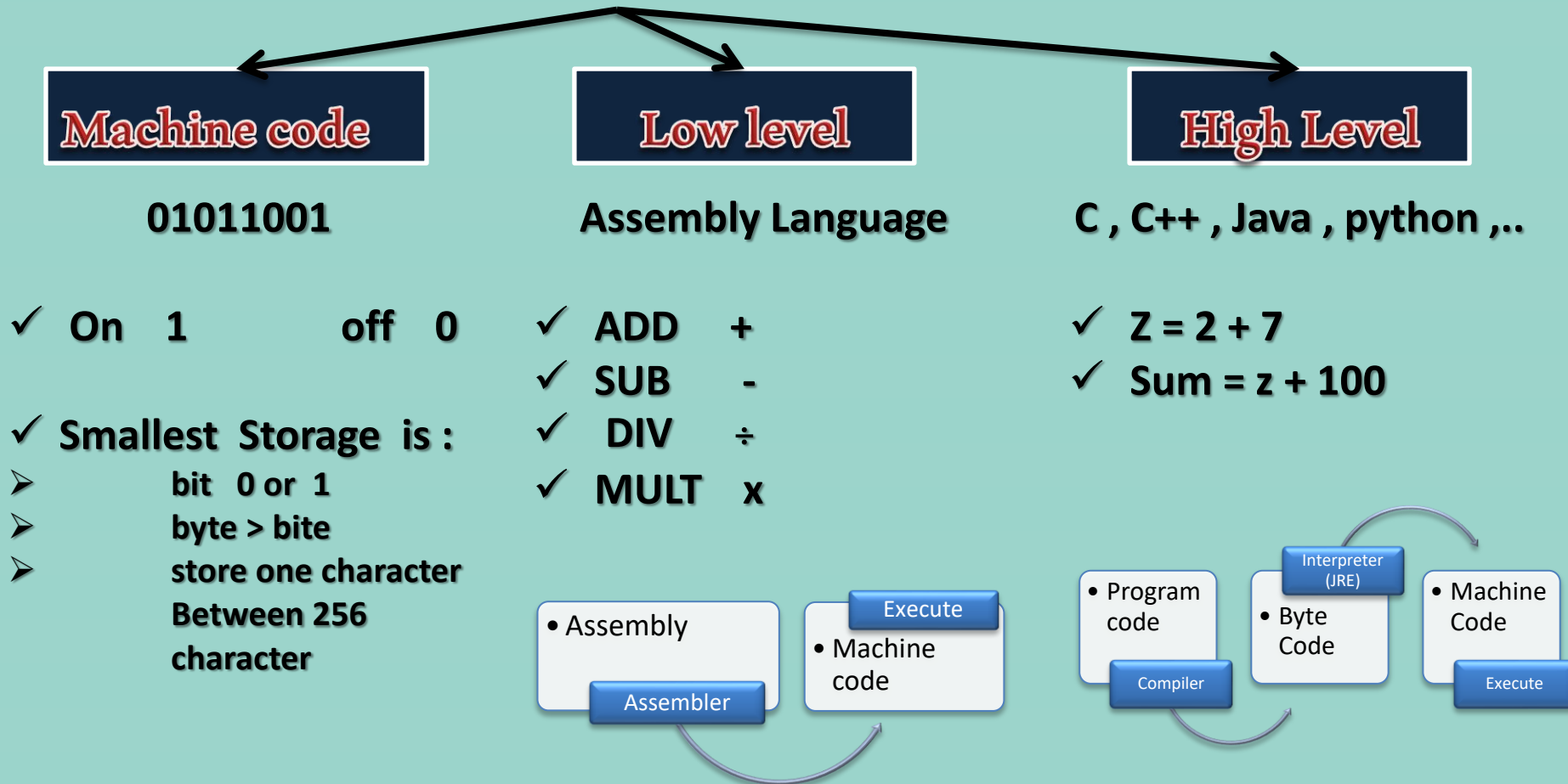
Solution in mind:

- determine equation :  $ax^2 + bx + c = 0$
- Step  $x1, x2 = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Solution in programming :

- Read a , b , c
- Find  $x1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$  ,  $x2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$
- Display x1 , x2

# To write Program Using Programming Languages



# Key Board Character

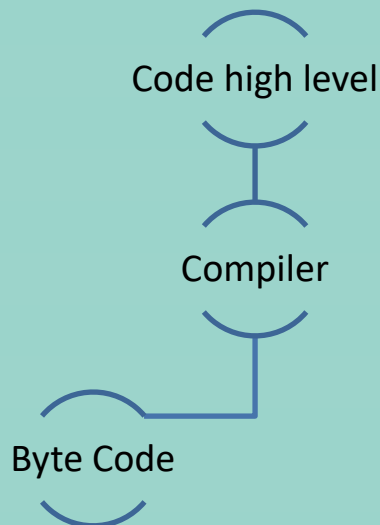
- ✓ Alphabets [ A – Z ] or [ a – z ]
- ✓ Digits [ 0 - 9 ]
- ✓ Special character \$ : ; and more

~	Tilde.	&	Ampersand, epershand, and symbol.	{	Open brace, squiggly brackets, or curly bracket.	;	Semicolon.
`	Acute, back quote, grave, grave accent, left quote, open quote, or a push.	*	Asterisk, mathematical multiplication symbol, and sometimes referred to as star.	}	Close brace, squiggly brackets, or curly bracket.	"	Quote, quotation mark, or inverted commas.
!	Exclamation mark, exclamation point, or bang.	(	Open or left parenthesis.	[	Open bracket.	'	Apostrophe or single quote.
@	Aspersed, arobase, asperand, at, or at symbol.	)	Close or right parenthesis.	]	Closed bracket.	<	Less than or angle brackets.
#	Octothorpe, number, pound, sharp, or hash.	-	Hyphen, minus, or dash.		Pipe, or, or vertical bar.	>	Greater than or angle brackets.
\$	Dollar sign or generic currency.	_	Underscore.	\	Backslash or reverse solidus.	,	Comma.
%	Percent.	+	Plus.	/	Forward slash, solidus, virgule, whack, and mathematical division symbol.	.	Period, dot or full stop.
^	Caret or circumflex.	=	Equal.	:	Colon.	?	Question mark.

# Compiler

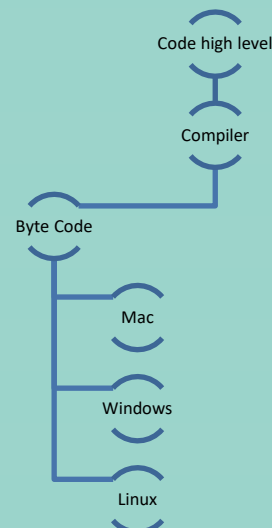
## Native

The system is programmed to run on specific devices and does not work on any other device



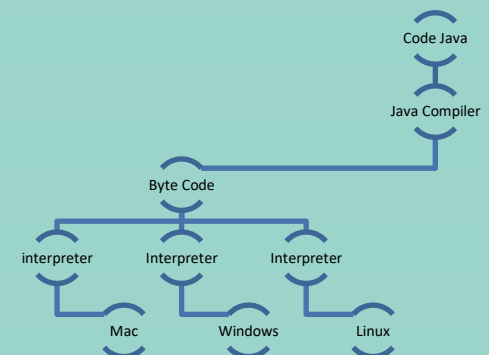
## Cross Platform

The system is programmed in environment and operating in an environment other than the working on it



## Portable

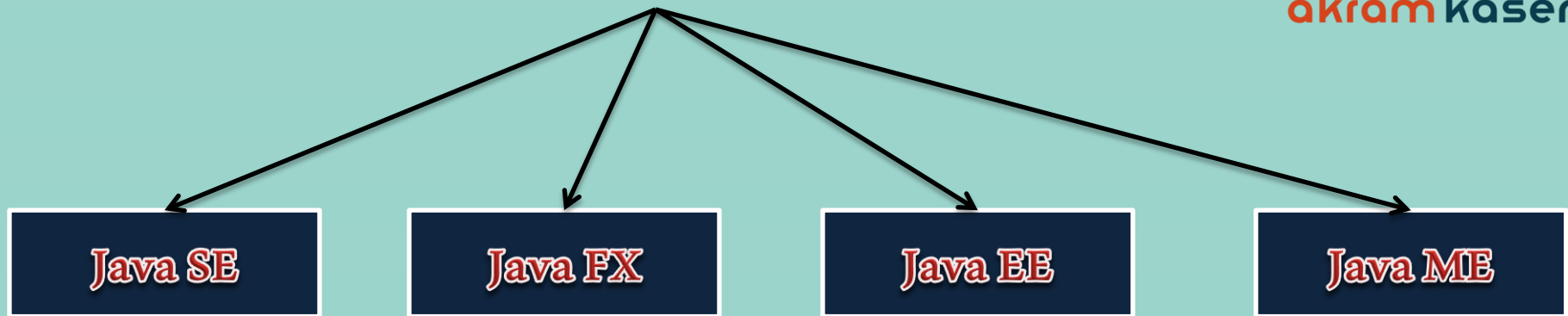
Java works on any operating system with one code and doesn't need to rewrite again



# What is Java?

- **Java is a cross-platform object-oriented programming language**
- **that was released by Sun Microsystems in the year 1995 , now part of Oracle.**
- **Java is a programming language developed by James Gosling with other team members named Mike Sheridan and Patrick Naughton also called as Green Team in 1995**

# Java Version?



- Java Standard Edition
- . Java SE's API provides the core functionality and high-level classes that are used for networking, security, database access, graphical user interface (GUI) development, and XML parsing.

- Java FX is a new framework for developing Java GUI programs.
- You will learn how to develop simple GUI programs using layout panes, buttons, labels, text fields, colors, fonts, images, image views, and shapes.

- Java Enterprise Edition
- The Java EE platform is built on top of the Java SE platform and provides an API and runtime environment for developing and running large-scale, multi-tiered, scalable, reliable, and secure network applications.

- Java Micro Edition
- This make mobile app and Game



# Advantages of Java



- **Simple :** Java has made life easier by removing all the complexities such as pointers, operator overloading as you see in C++ or any other programming language.
- **Portable :** This is platform independent which means that any application written on one platform can be easily ported to another platform.
- **Object-oriented :** Everything is considered to be an “object” which possess some state, behavior and all the operations are performed using these objects.
- **Secured :** All the code is converted in byte code after compilation, which is not readable by a human. and java does not use an explicit pointer and run the programs inside the sandbox to prevent any activities from untrusted sources. It enables to develop virus-free, tamper-free systems/applications.
- **Dynamic :** It has the ability to adapt to an evolving environment which supports dynamic memory allocation due to which memory wastage is reduced and performance of the application is increased.

# Advantages of Java



- **Distributed :** This language provides a feature which helps to create distributed applications. Using Remote Method Invocation (RMI), a program can invoke a method of another program across a network and get the output. You can access files by calling the methods from any machine on the internet.
- **Robust :** Java has a strong memory management system. It helps in eliminating error as it checks the code during compile and runtime.
- **High Performance :** Java achieves high performance through the use of byte code which can be easily translated into native machine code. With the use of JIT (Just-In-Time) compilers, it enables high performance.
- **Interpreted :** Java is compiled to byte codes, which are interpreted by a run-time environment.
- **Multithreaded :** Java supports multiple threads of execution (a.k.a., lightweight processes), including a set of synchronization primitives. This makes programming with threads much easier.

# Run time

