UNIVERSITY OF SCIENCE
VIETNAM NATIONAL UNIVERSITY, HO CHI MINH CITY

Individual Work

CS320 – Principles of Programming Language

Member

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Ho Chi Minh City, May 9th, 2025

Table 1: Programming Languages Overview (1/2)

Language	Top Keywords	Philosophy	Top 3 Features	Applications
Dart	- Fast - Precise - Versatile	- Web-based - UI-heavy apps - Strong typing	- Interoperability - AOT and JIT	- Mobile - Web - Desktop apps - Embedded systems
JavaScript	- Web app - Script language	- Simplicity - Composability - Uniformity	- Client-side - Event-driven - Cross-platform	- Web applications
Julia	- Two-language C and Python	- Multiple dispatches	- High performance - Ease of use - General purpose	- Web development - ML - CG - Scientific computation
Lua	- "Moon" in Portuguese	- Lightweight - Embedded - Extensible	- Extensibility - Portability - Readability	- Embedded systems - Games - Web apps
PHP	- Web app - Script language	- Write dynamically generated pages quickly	- Simple to set up - Web - Server-side	- Integrate with web servers - HTML embedded - DB integration (MySQL)
Python	- Inspired by "Monty Python"	- Simplicity - Versatility - Security	- Portability - Dynamic typing - Large community and libraries	- Data Science - AI/ML - Automation
Ruby	- Inspired by Perl	- Flexibility - Productivity - Human-centric design	- Everything is an object - Dynamic typing - Meta programming	- Full stack web development - Data processing - Fast prototyping - Scripting
Scala	- Scalable language	- Object-functional fusion	- Multi paradigm (OOP + FP) - Type inference - JVM compatibility	- Scientific computation

Table 2: Programming Languages Overview (2/2)

Language	Top Keywords	Philosophy	Top 3 Features	Applications
Golang	- Fast, simple language	- Simplicity - Performance - Efficient	- Simple syntax - Goroutines - Fast compilation, GC	- Backend web dev - DevOps tools - Cloud services
Java	- Write once, Run anywhere	- Strong, static typing - Simple, familiar syntax - High-performance & JIT	- Object-oriented - Garbage collector - Platform independent	- Enterprise apps - Mobile development - Web services
Kotlin	- Named after Kotlin island	- Pragmatic	- Java interoperability - Concise syntax - Concurrency	- Modern mobile/web apps
Ocaml	- Expressive type systems	- Statically typed - Type-inferred compiler	- GC - Type inference - Pattern matching - Expression-based	- Compiler development
R	- Statistical computing	- Performant	- Libraries - Data frames - CRAN ecosystem	- Statistical applications
Rust	- Robust, distributed, parallel	- Safety - Zero-cost abstraction - Performance	- Memory safety - Ownership model - Concurrency	- System-level programming
SAS	- Statistical Analysis System	- Enterprise - All-in-one - Data management	- Visualization - SQL integration - Strong security	- Statistical analysis - Data visualization - Data mining