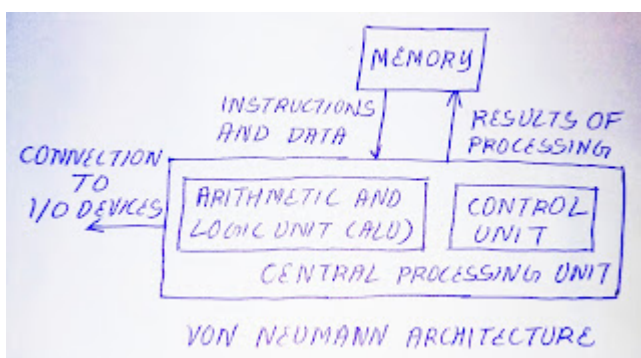


Influences on Language Design

1. Computer Architecture
2. Programming Methodologies
3. Virtual Machine

1. Computer Architecture:



Computer architecture is based on Von Neumann Architecture. A programming language is also affected by the architecture of computer. But how? This is the question we will see here. When we deploy/run a program, it resides in a memory and is executed by the CPU. There are registers like program counter, instruction register etc. Each instruction going from memory to CPU is decided by program counter. And program counter gets instruction info from instruction register. In this way, a program developed in languages passes through this kind of cycle, which affects the execution time of the language.

If system is multi user it will consume a lot of time.

2. Programming Methodologies:

- Structured programming: This programming methodology is also called top down design and step wise refinement. Its deficiency was incompleteness of type checking and inadequacy of control statements, which requires extensive use of go to statements. Ex. C.

- Data oriented programming: It focuses on data oriented methods emphasize data design, focusing on the use of abstract data types to solve the problem. Ex. Simula.
- Procedure oriented programming: It is the opposite of data oriented programming. Ex. C#.
- Object oriented programming: It gives support for Data abstraction, inheritance, polymorphism. Ex. C++.

3. Virtual Machine:

Virtual machines are software's on which other software's can be executed as they are executing on a physical machine.

There are two types of virtual machine:

1. Application/ process virtual machine.
2. System/hardware virtual machine.

1. Application/process virtual machine: In this we can take example of JVM. Because of JVM, Java is a platform independent language.

2. System/hardware virtual machine: In this we can take example of Virtual Box. Which gives as ability to run multiple of operating systems on a single physical machine. Here operating system is also a programming language which should be supported by Virtual Box.

[Click here to view on YouTube](#)

Viva Vice Q & A:

Q1. which factors influence the language?

Ans: virtual machine, comp. architecture, user, programming methodology, etc.

Q2. Program which interprets each line of high level program at time of execution is called?

Ans: Interpreter.

Q3. Program which interprets whole para of high level program at time of execution is called?

Ans: Compiler.

Q4. During the execution of the instructions, a copy of the instructions is placed in which part?

Ans: Cache.

Q5. Functions that are used in programs and are defined by programmers are called.

Ans: User-defined functions.

Q6. The internal Components of the processor are connected by?

Ans: Bus.

Q7. Set of data whose items are organized together is classified as.....

Ans: data structure.

Q8. The _____ format is usually used to store data.

Ans: BCD.

Q9. To reduce the memory access time we generally make use of ?

Ans: Cache.

Q10. The computer's own binary-based language is also known as?

Ans: Machine language.

Q11. Write example of "third generation" programming languages (3GL) ?

Ans: FORTRAN, LISP, and COBOL.

Q12. What is the common property of logic programming languages and functional languages is?

Ans: Both are declarative.

Q13. Programming language 'FORTRAN' stands for

Ans: formula translator

Principles of Programming Languages:

EasyExamNotes.com covered following topics in these notes.

- Language Evaluation Criteria
- Influences on Language Design
- Language Categories
- Programming Paradigms
- Compilation
- Virtual Machines
- Programming Environments
- Issues in Language Translation
- Parse Tree
- Pointer and Reference type
- Concept of Binding
- Type Checking
- Strong typing
- Sequence control with Expression
- Exception Handling
- Subprograms
- Fundamentals of sub-programs
- Scope and lifetime of variable
- static and dynamic scope
- Design issues of subprogram and operations
- Local referencing environments
- Parameter passing methods
- Overloaded sub-programs
- Generic sub-programs
- Design issues for functions
- co routines
- Abstract Data types

- Abstraction and encapsulation
- Static and Stack-Based Storage management
- Garbage Collection
- OOP in C++
- OOP in Java
- OOP in C#
- OOP in PHP
- Concurrency
- Semaphores
- Monitors
- Message passing
- Java threads
- C# threads
- Exception handling
- Exceptions
- Exception Propagation
- Exception handler in C++
- Exception handler in Java
- Introduction and overview of Logic programming
- Basic elements of Prolog
- Application of Logic programming
- Functional programming languages
- Introduction to 4GL

Practicals:

- Memory Implementation of 2D Array.
- Memory Implementation of 3D Array.
- Implementation of pointers in C++.

- Write a program in Java to implement exception handling.
- Write a program in C++ to implement call by value parameter passing Method.
- Write a program in C++ to implement call by reference parameter passing Method.
- Write a program in Java to implement concurrent execution of a job using threads.
- Implement Inheritance in C#.
- Implement Encapsulation in C#.
- Implement static/compiletime Polymorphism in C#.
- Implement dynamic/runtime Polymorphism in C#.

Previous years solved papers:

- [PPL|RGPV|May 2018](#)
- [PPL|RGPV|June 2017](#)

A list of Video lectures

- [Click here](#)

References:

1. Sebesta, "Concept of programming Language", Pearson Edu
2. Louden, "Programming Languages: Principles & Practices", Cengage Learning
3. Tucker, "Programming Languages: Principles and paradigms", Tata McGraw -Hill.

4. E Horowitz, "Programming Languages", 2nd Edition, Addison Wesley

Related Posts:

1. Sequence Control & Expression | PPL
2. PPL:Named Constants
3. Parse Tree | PPL | Prof. Jayesh Umre
4. Basic elements of Prolog
5. Loops | PPL | Prof. Jayesh Umre
6. Subprograms Parameter passing methods | PPL | Prof. Jayesh Umre
7. Programming Paradigms | PPL | Prof. Jayesh Umre
8. Subprograms Introduction | PPL | Prof. Jayesh Umre
9. Phases of Compiler | PPL | Prof. Jayesh Umre
10. Parse Tree | PPL
11. Influences on Language design | PPL | Prof. Jayesh Umre
12. Fundamentals of Subprograms | PPL | Prof. Jayesh Umre
13. Programming Paradigm
14. Influences on Language Design
15. Language Evaluation Criteria
16. OOP in C++ | PPL
17. OOP in C# | PPL
18. OOP in Java | PPL
19. PPL: Abstraction & Encapsulation
20. PPL: Semaphores

21. PPL: Introduction to 4GL
22. PPL: Variable Initialization
23. PPL: Conditional Statements
24. PPL: Array
25. PPL: Strong Typing
26. PPL: Coroutines
27. PPL: Exception Handler in C++
28. PPL: OOP in PHP
29. PPL: Character Data Type
30. PPL: Exceptions
31. PPL: Heap based storage management
32. PPL: Primitive Data Type
33. PPL: Data types
34. Programming Environments | PPL
35. Virtual Machine | PPL
36. PPL: Local referencing environments
37. Generic Subprograms
38. Local referencing environments | PPL | Prof. Jayesh Umre
39. Generic Subprograms | PPL | Prof. Jayesh Umre
40. PPL: Java Threads
41. PPL: Loops
42. PPL: Exception Handling
43. PPL: C# Threads
44. Pointer & Reference Type | PPL
45. Scope and lifetime of variable
46. Design issues for functions
47. Parameter passing methods

48. Fundamentals of sub-programs
49. Subprograms
50. Design issues of subprogram
51. Garbage Collection
52. Issues in Language Translation
53. PPL Previous years solved papers
54. Type Checking | PPL | Prof. Jayesh Umre
55. PPL RGPV May 2018 solved paper discussion| Prof. Jayesh Umre
56. PPL Viva Voce
57. PPL RGPV June 2017 Solved paper | Prof. Jayesh Umre
58. Concurrency
59. Basic elements of Prolog
60. Introduction and overview of Logic programming
61. Application of Logic programming
62. Language Evaluation Criteria PPL
63. PPL: Sequence Control & Expression
64. PPL: Programming Environments
65. PPL: Virtual Machine
66. PPL: Programming Paradigm
67. PPL: Pointer & Reference Type
68. try-catch block in C++