Week 1:

Orthogonality – A relatively small # of constructs that can be combined into a small # of ways to build the control and data

Difference between Assembly and High level Languages –

Assembly – Directly controls physical hardware, no compiler, one machine instruction

High Level Language – More abstract, can be compiled/translated into machine language

Week 2:

Evaluation Criteria (3 Major Ones)

* Variables, Assignment Statement, Iteration

\*\*\*Von Neumann Architecture (Draw it)

Language Categories:

* Imperative – Contains a component (statement)
* Functional – Updated imperative (no iteration, rely completely on recursive)
* Logical – Rule based, rules specified in no particular order, Data = fact or rule / Query. Control: interfering engine () – then use
* Object-Oriented – Closely related to imperative. 2nd type - procedural

\*\*\*Skeleton of Compiler & interpreter (flow chart)

Week 3:

Syntax – Form or structure of the expression statement and programming units

Semantics – Meaning of expression, statements, and programming units

Lexemes – Lower level syntax unit language (smallest unit, cannot break down any further) (+,-,I,count)

BNF – Abstractions are used to represent syntactic structures (act like syntactic variables (also called nonterminal symbols)

* This rule contains 3 abstractions and one lexemes
* A rule has a LHS & RHS, consist of terminals (lexemes and tokens) and nonterminal systems
* A grammar is a finite nonempty set of rules

EBNF -

Derivation - a process from start symbol and stops when we reach a terminal (Finish).

Parse Tree

Ambiguous Grammar

Operator Procedure & Associativity

Recursive Descent Parsing

Operational Semantics (Code)

Axiomatic Semantics (Code)

* Precondition
* Postcondition

Flex

Bison

Week 4:

Typedef – define your own datatype

Static Variables

(Code) Scoping – represents a range in which a variable is visible

1. Static – Physical Layout 2) Dynamic – Calling Sequence

Reference Environment – All visible variables at a certain location in your code. The

Week 6:

For each loop

Week 8:

Parameter Passing

* By value
* By Reference
* By Result
* By Name

Activation Record Instance (ARI) for calling sequence

Week 9:

Array

Hash

Foreach loop

Push, pop, shift, unshift (piece of code)

Pattern matching

Reference

Class (a package) – a sub new … +Bless function

Parameter passing to a function ($a, $b) = @-i

Inheritance @ISA = (‘person’, ‘Animal’);