**BA371 The Code Issue Terms & Definitions**

**The Man in the Taupe Blazer**

* *TMitTB (the man in the taupe blazer)*: technical team lead

**Why Are We Here?**

* **Clojure**- Dialect of LISP (second oldest programming language, highly complex), general-purpose program with an emphasis on functional programing (style of building the structure and elements of a computer program).
* **Embedded system-** is a computer system with a dedicated function which is part of a larger mechanical or electrical system.
* **Information Architect-** designer of structural, shared information environments.
* **International Data Corporation (IDC)-** is a provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets.
* **JavaScript-** an object-oriented computer programming language commonly used to run programs inside a web browser.
* *Perl*: interpreted programming language. Used a lot for scripting
* *PHP*: Interpreted programming language. Use a lot for developing Web applications.
* **Python-** Interpreted language), which is a high level and general-purpose program.
* **XSLT (Extensible Style sheet Language Transformations)-** Language used for transforming XML (extensible markup language) documents into other XML documents or other formats like HTML (HyperText Markup Language)

**How Do You Type an 'A'?**

* **Scancode** this is the data sent by the keyboard reporting which keys have been pressed to the computer; each key is assigned a number or sequence of numbers
* **ASCII** American Standard Code for Info Interchange, a character encoding standard that encodes 128 specified characters into eight-bit integers, e.g. the letter “i” as 01101001
* **Unicode** a computing industry standard ensuing consistent encoding, representation, and text handling, regardless of device, of 136,755 characters (as of most recent Unicode v10.0 in June 2017); because of ability to hold more information, more characters can be added regularly in conjunction with ISO

**Let's Begin:**

* **Operation:** A process in which a number, quantity, expression, etc., is altered or manipulated according to formal rules, such as those of addition, multiplication, and differentiation.
* **Data Centers:** A data center is a facility used to house computer systems and associated components, such as telecommunications and storage systems.
* **“Batch” Processing in Photoshop:** An action where all actions done to one photo will be recorded and applied to multiple other photos.
* **Processor:** The component of a computer system that performs the basic operations (as processing data) of the system, that exchanges data with the system's memory or peripherals, and that manages the system's other components**.**
* **RAM:** Random Access Memory is a form of computer data storage that stores data and machine code currently being used.

**From Hardware to Software:**

**Linux:** Free and open sourced operating system released by Linus Torvalds September 17 th , 1991.

Operating System: The software that enables a machine to be useable for the public. It supports basic

functions and allows users to run applications.

**Subprograms:** Simple applications that automatically come with operating systems like solitaire or a

mail app.

**Software:** The operating information and programs used by a computer.

**Hardware:** The physical parts of a computer system.

**How Does Code Become Software?', '2016-01-01');**

**Punch cards** – a card perforated according to a code, for controlling the operation of a machine, used in voting machines and formerly in programming and entering data into computers.

**K** – a proprietary array processing language developed by Arthur Whitney and commercialized by Kx Systems.

**Scratch** – is a free visual programming language used to learn basic programming languages such as Python and Java for children.

**Fortran** –an acronym for **FOR**mula **TRAN**slation designed to allow easy translation of math formulas into code.

**Logic gates** – an elementary building block of a digital circuit with two inputs and one output.

**Compiler** - a program that translates the source code for another program from a programing language into executable code.

**Low-level instruction** – machine code or assembly language that is far more difficult to be understood by human, but is easier for the computer. This is that converted executable code that was translated by a compiler.

**Lexical analysis** - convert a sequence of characters and breaking it into series of tokens by removing any whitespace or comments in the source code.

**Tokens** – basic component od source code with an assigned and thus identified meaning.

**What Is an Algorithm?**

* **Algorithm**: A process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.
* **Dijkstra’s algorithm**: A method for finding the shortest paths between nodes in a graph or road network, developed by Edsger Dijkstra.
* **Euclid’s algorithm**: A method for finding the greatest common divisor between two positive integers, without leaving a remainder.
* **PostScript**: A programming language originally designed to program printers. A page description language in the electronic publishing and desktop printing, created by Adobe System.
* **Stack**: fundamental algorithmic structure in computing. For instance, method foo ( ) calls method goo ( ). Method goo ( ) calls method zoo ( ).

For example, 3. zoo ( )

2. goo ( )

1. foo ( )

* **DRY**: Don’t Repeat Yourself. For example, you can create a method and call it in your program, instead of writing it over and over again.

**The Sprint**

**Functional Specification:** is a set of at least a thousand statements about users clicking buttons. What you want to program to do.

**Wireframe Mockups:** are pictures or rough sketch of what the program will look like to the user.

**Slack:** is essentially a google chat, a place where programmers can talk to one another.

**Commit:** is the making of a set of tentative changes permanent. A commit is an act of committing.

**Standup:** meeting every morning is used to communicate problems, solutions, and promote team focus.

**Sprint:** (type of Agile framework) instead of doing a project in waterfall steps, you look at it in chunks. One part of the project in the first two weeks, next part in one week, ect.

**User Story:** (use case) what the program will look like to the users.

**What's With All These Conferences, Anyway?**

* **Keynote Speakers** 
  + **Created the technology or programming language being showcased**
* **Regular Speakers**
  + **Present idea, technique or approach**
* **Panels** 
  + **Multiple professionals interacting and discussing a given topic**
    - **Tend to stray off topic**
* **Code of Conduct** 
  + **Written rules and explanations of how participants should compose themselves and interact with others while in attendance**

**Why Are Programmers So Intense About Languages?**

RedMonk- is one of the biggest industry analyst firms focused on software developers.

Perl Languages- a family of high-level, general-purpose, interpreted, dynamic programming languages. Shows the development of a certain language over times.

**The Beauty of the Standard Library**

* **Module**: Preexisting code for a language with the intention of expanding its capabilities. They can either be included with a language or come from a 3rd party.
* **Standard Library**: The set of prewritten modules that are included in a programming language. It provides functionality beyond what is built into the compiler.
* **Package Manager**:A software tool that downloads and manages the installation of 3rd party modules automatically.
* **Pip**: A package manager for downloading and installing 3rd party modules for python.
* **Pillow**: A commonly used 3rd party library for python that has several modules for image processing.
* **NumPy:** A commonly used 3rd party library for python that has several modules for scientific computing

**What Do Different Languages Do?**

* **Assembly (asm): a low-level programming language in which there is a very strong (but often**

**not one-to- one) correspondence between the language and the architecture’s machine code**

**instructions**

**• C: A general purpose, classic language that prevents most unintended operations**

**• Python: Created in 1991, an interpreted high-level programming language for general-purpose**

**programming**

**• PHP: (Hypertext Preprocessor) a widely used open-source general-purpose scripting language**

**that is suited for web development and can be embedded into HTML**

**• Perl: Developed in the 1980s, used for automating systems, acting as a glue between different**

**computer systems and being a popular language for CGI programming.**

**• Java: a general-purpose, concurrent, strong typed, class-based, object-oriented language.**

**• Ruby: a dynamic, open-source language with a focus on simplicity and productivity**

**• Go Gopher: The Go language (developed 2009 at Google) is an open-source language used for**

**memory management and safety features. It is based on the Algol and C languages.**

**• Scratch: A free visual programming language for children.**

**• Lisp: Specified in 1958, is a family of high-level computer programming languages. Fortran is the**

**only older language (by one year).**

**The Importance of C**

**The Corporate Object Revolution**

* **C:** A programming language that was very popular in the 80’s and 90’s (still used by many today) that lacked OOP designs
* **C++:** An improvement from C that added object oriented features to the language
* **Class:** Is a type used to create objects. In a class, you can give objects state and behaviors. Think of it like a blueprint for an object.
* **Object Oriented Programming:** Is a way of designing and modeling code based on real state and behavior. Objects are bundled with state and behavior, and give a way to design code only exposing stuff to the user without showing all the little details.
* **Simula:** One of the oldest OOP languages
* **Smalltalk:** A very intensive OOP language

**Look How Big and Weird Things Get With Just Python**

**Python**: Object oriented language that is built on many abstractions to work with different languages, such as C, C++ and Fortran77

**Abstraction**: Hiding all but the relevant data about an object in order to reduce complexity and increase efficiency.

**Jython**: Version of Python designed to run inside of Java

**IronPython**: Version of Python that works with Microsoft’s .NET

**Why Are Coders Angry?**

**Bikeshedding:** arguing over things that do not matter(what color is the bike shed going to be? Who cares?)

**Cloud microservices:** type of architecture that allows for continuous delivery/ deployment of complex applications in the cloud

**Silicon Valley:** southern portion of the bay area California that is known for its technological advancements and start up companies.

**The Legend of the 10x Programmer**

**The Thing About Real Artists Is That They...**

**We Still Need to Choose...**

* **PHP[world]:** Is an annual conference where programmers can gather to talk and learn about the PHP language.
* **PHP:** Is a programming language that is commonly used for web development but can bet used as a general-purpose language. Was created by Rasmus Lerdorf is 1994.

**Why Are There So Many Languages?**

* Cobol: Programming language used in the 1960s. Stands for Common Business Oriented Language.
* Fortran: The oldest computer programming language used especially for scientific computation.
* Lisp: A family of computer programming languages that originated in 1958. The word Lisp is derived from "list processing".
* PHP: A widely used open source general purpose scripting language that is especially suited for web development and can be embedded into HTML.

**The Time You Attended the Email Address Validation Meeting**

**Best Practice:** commercial or professional procedures that are accepted or prescribed as being correct or most effective

**Mailinator.com:** an online temporary email service

**RFC 5321:** Simple Mail Transfer Protocol from the Internet Engineering Task Force (IETF)

**RFC 5322:** Internet Message Format from IETF

What Is the Relationship Between Code and Data?

**Where Does Data Live?**

* Relational Databases: is a digital database whose organization is based on the relational model of data, as proposed by E. F. Codd in 1970.
* SQL: is a special-purpose programming language designed for managing data held in a relational database.

**The Language of White Collars**

Java - A general coding language that will run on almost any computer

Class Library - A collection of classes, methods, and pre-written code that can be used to complete tasks that the language can perform

Virtual Machine - An interpreter; a program which reads code line by line and executes it without compilation.

**Briefly on the Huge Subject of Microsoft**

Applets: Small Java (not JavaScript!!) applications run in the web browser (nowadays pretty much defunct)

Dynamically (or Weakly) typed: Variable checking is done at run-time → programmer does not declare variables

Statically (or Strictly) typed: Variable checking is done at compile-time → programmer must declare variables

Liquid Infrastructure

Off the Shelf

What About JavaScript?

**What's the Absolute Minimum I Must Know About PHP?**

PHP: Interpreted Programming language, allows for server based computing of webpages

JavaScript: Interpreted Programming Language, allows for browser based computing in webpages

How Are Apps Made?

**The Framework: Wilder, Younger Cousin of the Software Development Kit**

**Framework:** a skeleton of a program that is formatted to serve the needs of a programmer; designed to give programmers an easier time coding exactly what they want in their programs

**Django:** a web-application framework designed for use in Python

**Ruby on Rails (RoR):** a web-application framework developed in and designed for the Ruby language

**Software Development Kit (SDK):** corporate frameworks, commercial in nature and sold to the public; highly useful and renowned

**“Admin” View:** rights to enter data and update/change information within a program framework

**Premature optimization:** overthinking the code before realizing what the real problems might be

**NIH:** “Not invented here”

What Is Debugging?

* **Debugging:**  *is a routine process of locating and removing computer program bugs, errors or abnormalities, which is methodically handled by software programmers via debugging tools. Debugging checks, detects and corrects errors or bugs to allow proper program operation according to set specifications.*

Nothing Is Built

**How Does Testing Work?**

* SQLite - a relational database management system contained in a C programming library.
* Test-Driven Design - Writing the tests for the code you are about to write.

And Now for Something Beautiful

* Version Control: A component of software configuration management.
* COMMIT: A statement to end the current transaction and make permanent all changes performed in the transaction.
* git clone: will copy all of the code that is and was in Node.js to your local machine.
* git add: add file changed
* git commit: enter commit massage explaining what have done.

The Triumph of Middle Management

How Do You Pick a Programming Language?

**Welcome to the Scrum**

* **JIRA** – Software development tool used to plan, track, release, and report on the stages of a project
* **Blockers** – Unfinished sections of code which prevent another programmer from completing a separate section

Managing Programmers

**We Are Going to Ship**

* Virtual Private Network: an extension of private network across a public network. Enables users to send and receive data across shared or public networks even if their device was directly connected to a private network.
* Integrated Development Environment: a software application that provides facilities to computer programmers for software development. An IDE generally consists of a source code editor, build automation tools and a debugger. Ex/ Visual Studio
* Server-side Javascript: an extended version of JavaScript that enables the enhancement and manipulation of webpages and client browsers.
* Client-side Javascript: an extended version of JavaScript that enables access to databases, file systems, and servers.
* Continuous Integration Server: a server used to implement continuous processes and apply quality control measures — coding is done in small pieces of effort, applied frequently.

Should You Learn to Code?

* Low-Level Languages- A programming language that provides little or no abstraction from a computer. Low-level languages are often called machine code or assembly languages. For example, Objective C.
* Objective C- General purpose object-orientated programming language that adds small-talk style messaging to the C programming language.
* SDK- Software development kit- A set of software development tools that allows the creation of applications for a certain software package, framework, hardware platforms, computer and operating systems.
* MIDI- Musical Instrument Digital Interface- a technical standard that describes a communications protocol, digital interface, and electronic connectors.

Version Control: A component of software configuration management.