**BA371 The Code Issue Terms & Definitions**

**The Man in the Taupe Blazer**

* *TMitTB (the man in the taupe blazer)*: technical team lead.
* Scrum Master: the facilitator for an agile development team. Scrum is a methodology that allows a team to self-organize and make changes quickly, in accordance with agile principles. The scrum master manages the process for how information is exchanged
* Platform: Computing platform, a framework on which applications may be run
* Drupal 7: the friendly and powerful content management platform for building nearly any kind of website; from blogs and micro-sites to collaborative social communities
* Magento: an open source e-commerce platform written in PHP. The software was originally developed by Varien Inc., a US private company headquartered in Culver City, CA, with assistance from volunteers
* PHP: a server-side scripting language designed for web development but also used as a general-purpose programming language. Originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by the PHP group. It is a widely used open source general purpose scripting language that is especially suited for web development and can be embedded into HTML
* Node.js: an open-source, cross-platform JavaScript run-time environment for executing JavaScropt code server-side
* Backbone.js: a JavaScript library with a restful JSON interface and is based on the model-view-presenter application design paradigm
* JavaScript: high-level, dynamic, weakly typed, prototype-based, multi-paradigm, and interpreted programming language. Alongside HTML and CSS, JS is one of the three core technologies of WWW content production
* Content management (system)/project: (CMS) is a computer application that supports the creation and modification of digital content
* Customer relationship management: an approach to manage a company’s interaction with current and potential customers
* Enterprise resource planning: (ERP) is a business process management software that allows an organization to use a system of integrated applications to manage the business and automate many back office functions related to technology, services and human resources
* WordPress: a free and open-source content management system based on PHP and MySQL. To function, WordPress has to be installed on a web server, which would either be part of an internet hosting service or network host in its own right
* Spaghetti code: a pejorative phrase for source code that has a complex and tangled control structure, especially one using many GOTO statements, exceptions, threads, or other “unstructured” branching constructs. It is named such because program flow is conceptually like a bowl of spaghetti
* Third-party services: web-based technologies that are not exclusively operated or controlled by a government entity or that involve significant participation of a non-government entity
* Agile cycle: the agile software development life cycle is based on the iterative and incremental process models, and focuses upon adaptability to changing product requirements and enhancing customer satisfaction through rapid delivery of working product features and client participation

**Why Are We Here?**

* PHP: Interpreted programming language. Used a lot for developing Web applications.
* Perl: a high-level general-purpose programming language used  especially for Web applications
* Oraper1: a special version of the Perl Language modified to work the Oracle database
* Java: a general-purpose computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible
* Python: a high-level general-purpose programming language
* Lisp: an old programming language, traditionally used for artificial intelligence
* Clojure: a lisp dialect (a variation of Lisp)
* XSLT: Extensible Stylesheet Language Transformations. A language for transforming XML documents into other XML (extensible markup language: communicates data between programs) documents, or other formats such as HTML for web pages, plain text, or XSL Formatting Objects, which may subsequently be converted to other formats, such as PDF, PostSCript, and PNG.

**Let’s Begin**

* **Processor**: unit provides basic computational operations
* **RAM**: memory accessible by the processor
* **Hard Drive**: mechanical storage
* **Network Connection**: computing devices exchange data with each other using connections between nodes

**How Do You Type An ‘A’?**

**From Hardware to Software**

* **Developer** – An individual concerned with facets of the software development process, including research, design, programming, and testing of computer software.
* **Hardware** – The machines, wiring, and other physical components of a computer or other electronic device.
* **Software** – The programs and other operating information used by a computer.
* **Operating System (OS)** – An OS is the software that supports a computers basic functions for instance scheduling tasks, implementing applications, and regulating peripherals.

**How Does Code Become Software?**

* Scratch - A visual coding language intended for children to get them to think creatively and computationally.
* Fortran -  A general-purpose, imperative programming language that is especially suited to numeric computation and scientific computing
* Logic Gates - An idealized or physical device implementing a [Boolean function](https://en.wikipedia.org/wiki/Boolean_function); that is, it performs a [logical operation](https://en.wikipedia.org/wiki/Logical_operation) on one or more [binary](https://en.wikipedia.org/wiki/Binary_number) inputs and produces a single binary output
* Lexical Analysis - is the process of converting a sequence of characters into a sequence of tokens.
* Stradivarian - Stradivari's instruments are regarded as amongst the finest bowed stringed instruments ever created, are highly prized, and are still played by professionals today.
* Lilliputian - Trivial or small

**What Is an Algorithm?**

* **Algorithm**: a specified process used to solve a problem.
* **Programming Language**: a system used to code algorithms (often allows you to store, apply, and share algorithms).
* **Library**: a set of coded algorithms.
* **DRY Principle**: “Don’t Repeat Yourself.” Try not to write the same code twice.

**The Sprint**

* **Sprint**- Define a small scope of functions to code within a set amount of time

       **Commit**- Submitting tentative changes permanently

       **Stand-up meeting**- Daily meeting, attendees must stand, or connect in through online, often via “Slack”

       **Functional Specifications**-Statements about users clicking buttons

       **User stories**- tiny hypothetical narratives about people using the site

       **Error messages**- Problems with the site without solution

       **Wireframe mock-ups**- pictures of how the website will look, created by hand in a program

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

* **Ruby:** dynamic, reflective, object-oriented, general-purpose programming language.
* **Node.js:** an open source development platform for executing JavaScript code server-side.
* **Scala:** a general-purpose programming language providing support for functional programming and a strong static type system, designed to be concise.
* **Average Programmer:** moderately diligent, capable of basic mathematics, has a working knowledge of one or more programming languages and can communicate what he or she is doing to manager and his or her peers.
* **Acculturate:** assimilate or cause to assimilate a different culture, typically the dominant one.

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

* **Pycon:** Conference for Python Community.
* **Strata Conference:** Conference for big data.
* **Oscon:** Conference for Open-Source coders Community.
* **Y Combinator:** venture capitalist firm that funds startups.
* **Lambda the Ultimate:** Web forum which names was inspired by a series of papers written about the influential programing language scheme.
* **RedMonk:** Consulting firm to help consumer about technologies, and communicate with developers.
* **Perl:** High-level programming language (used in CGI, system admin, network programming, etc)

**The Beauty of the Standard Library**

**What Do Different Languages Do?**

* **Assembly: An assembly (or assembler) language, often abbreviated asm, is a low-level programming language for a computer, or other programmable device, in which there is a very strong (but often not one-to-one) correspondence between the language and the architecture's machine code instructions.**
* **Python: It refers to the interpreted high-level programming language for general purpose programming. Companies that use python and its variations: Instagram, Pinterest, Spotify**
* **PHP (Personal Home Page): Server-side scripting language designed for web development but it can be used for other programming purposes. It is suited to for web development and can be embedded into HTML. Used by Facebook, Wikipedia and WordPress.**
* **Perl: Practical Extraction and Reporting Language-high level general purposes interpreted programming language. It was developed in 1980s.**

**BuzzFeed**

* **Java: Java is a general-purpose computer-programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. Used by Google, EBay, LinkedIn, Amazon**
* **Ruby: Object oriented and dynamic programming language used for general purpose programming. It is quite similar to python and is generally used to create web applications. Ruby is used by: Twitter, GitHub, Groupon, Shopify**
* **Haskell: While Haskell is a general purpose language purely functional programming language that can be used in any domain and use case, it is ideally suited for proprietary business logic and data analysis, fast prototyping and enhancing existing software environments with correct code, performance and scalability. Non-strict semantics and strong static typing attributes.**
* **Scratch: A teaching language for kids. It doesn’t use text much at all but allows li’l coders to move icons around on screen and assemble programs like Legos. Its logo is a smiling cat on two legs.**
* **Lisp: Lisp (historically, LISP) is a family of computer programming languages with a long history and a distinctive, fully parenthesized prefix notation. Originally specified in 1958, Lisp is the second-oldest high-level programming language in widespread use today.**

**The Importance of C**

* **C:** programming language created by Dennis Ritchie in the late 1960s at Bell Labs. “ridiculously fast”.
* **Unix**: operating system developed in early 1970s. Programmed in C. Spread from Bell Labs to schools to large industrial systems to everywhere (Linux, Android, OS-X).
* **Kernel :** the lowest level of an operating system. The Unix/Linux kernel is like the engine in a car. It is the actual operating system. It communicate between software and hardware.
* **Shell**: is a user interface for access to an operating system’s services. It is named a ‘shell’ because it is the outermost layer around the operating system kernel.
* **Shell Script:** A program written in the shell language. Runs directly in the shell

**The Corporate Object Revolution**

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

* **Abstraction:** establishing a specified level of simplicity in terms of how a person interacts with the system and involves “hiding” more complexities below the level that the person interacts with.
* **Glue-language:** code can be taken from lower-level languages and embed this into an easier-to-use system.
* **Object-oriented programming (OOP):** “filing system for code”; “a programming language model organized around [objects](http://searchsoa.techtarget.com/definition/object) rather than "actions" and data rather than logic. Object-oriented programming takes the view that what we really care about are the objects we want to manipulate rather than the logic required to manipulate them.
  + **Data modeling** = identifying all objects and how they relate to each other
* **Python:** plays well with C, but doesn’t jive with java 🡪 Jython
* **Transpile:** taking source code in one language and translating it to a language with a similar level of abstraction
* **Wrapper Functions:** changing a function by “wrapping it” into another function such as that the functionality of the original function doesn’t need to be changed.
  1. According to wiki.python,
     1. allocating and disposing resources
     2. checking pre- and post-conditions
     3. caching / recycling a result of a slow computation

**Why Are Coders Angry?**

* **Bikeshedding:** Technical disputes over minor, marginal issues conducted while more serious ones are being overlooked.

**The Legend of the 10x Programmer**

* **Programmer:** A programmer, developer, dev, coder, or software engineer is a person who creates computer software. Can refer to a specialist in one area of computer or to a generalist who writes code for many kinds of software.

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

* **Ship:** A cult word for “Shipping” in the programming world. Which mean to package code and send it to client.
* **Shiny:** Anything new and exciting. Think kid at opening a gift with something they really wanted.
* **Technical Debt:** A concept in programming that reflects the extra development work that arises after shipping.

**We Still Need to Choose…**

**Why Are There So Many Languages?**

* **COBOL** – Short for Common Business Oriented Language. COBOL is a compiled English-like language designed mainly for business use.
* **Fortran** – Short for Formula Translation. Fortran is a general-purpose computer language that is especially suited to numeric computation and scientific computing.
* **Lisp** – Short for List Processor. Lisp is a language created as a practical mathematical notation for computer programs. Sometimes referred as “Lots of superfluous parentheses.”
* **ITA** – travel industry software division of Google.

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

* **HTML**: Hypertext Markup Language is the standard markup language for creating web pages.
* **RFC 5321:** This specification is a revision of Request For Comments (RFC): Simple Mail Transfer Protocol
* **RFC 5322:** This specification is a revision of Request For Comments (RFC): Internet Message Format

**Where Does Data Live?**

* **SQL**: Structured Query Language is a domain-specific language used in programming and designed for managing data held in a relational database management system (RDBMS).

**The Language of White Collars**

* **Java:** a general-purpose computer-programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible.
* **Sun MicroSystems:** company that created Java in 1991. Important UNIX computer maker whose market was essentially destroyed by the arrival of Linux. Was acquired by Oracle in 2010. Sun machines are still marketed under the Oracle brand. 2016-17 revenue: about $4B.
* **Documentation**: written text or illustration that accompanies computer software or is embedded in the source code. It either explains how the software operates or how to use it.
* **Class Library:** a collection of prewritten classes or coded templates, any of which can be specified and used by a programmer when developing an application program.

**Liquid Infrastructure**

* Enterprise programming - Programming enterprise-wide applications
* **Java byte-code** - instruction set/machine language of the Java virtual machine
* Java Virtual Machine (JVM) - is the runtime engine of the Java Platform, which allows any program written in Java or other language compiled into Java bytecode to run on any computer that has a native JVM
* Scala - general-purpose programming language providing support for functional programming and a strong static type system, object-oriented, and uses a curly-brace syntax reminiscent of the C language
* Clojure - a dialect of the Lisp programming language, provides easy access to the Java frameworks, and is functional program that runs on the Java virtual machine

**What About JavaScript?**

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

**How Are Apps Made?**

* Application programming interface (API) = Set of methods, protocols, and tools for building application software
  + Can be a web-based system, operating system, database system, computer hardware, or software library
* Bezel = Outside frame around a button in the program (button border)
  + Bezels have three types of buttons: push buttons, sticky buttons, and radio buttons and checkboxes
* Ecosystem = iCloud, iOS, and Mac OS X integrations; a platform for the Apple’s systems
* Integrated development environment (IDE) = Software app that provides facilities to programmers for software development
* Software development kit (SDK) = Set of software development tools that allows creation of apps for certain software package and framework, hardware platform, computer system, video game console, operating system, or similar development platforms
* XCode = IDE used by Mac developers to create applications (apps)

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

* Framework: Similar to a SDK, a framework provides the prebuilt foundations needed to take a project, whether it be web, network, or graphics, and allows the programmer to build a functioning system very quickly.
* Django: A web framework for coding in Python.
* Debugging: “Programming is debugging. It’s the expectation that things won’t work.”

**What Is Debugging?**

**Nothing Is Built**

* Boondoggle: Work or activity that is wasteful or pointless but gives the appearance of having value.

**How Does Testing Work?**

* **Automated Testing:** A process in which software tools execute pre-scripted tests on a software application before it is released into production.
* **(Software) Bug:** Error or fault that causes a program to crash or produce incorrect results.
* **SQLite:**
  + An embedded SQL database engine (probably on your smartphone).
  + Developed by D. Richard Hipp
    - Worked on it for 15 years
  + Widely used software and best-tested pieces of code.
  + Totally open, totally free, and has 33,402 tests.
* **Tests:** Code that check functions in other code to see if they are working as expected.
* **Test-driven design:** Write tests that the code you hope to write must pass before you start programming.

**And Now for Something Beautiful**

* **Version Control:** The task of keeping a software system consisting of many versions and configurations well organized.
* **Commit:** Message explaining what was done during a certain action.
* **Diff:** What’s been added or removed from one commit to another.
* **Forks:** Individuals who copy code from a repository into their own repository.
* **Git:** A version control system for tracking changes in computer files and coordinating work on those files among multiple people.

**The Triumph of Middle Management**

**How Do You Pick a Programming Language?**

* Go – A programming language designed for creating highly available servers that use as much of the computer’s processor as possible.

**Welcome to the Scrum**

**Managing Programmers**

* **Agile Methodology**: Calls for regular coordination among programmers, providing a set of rituals and norms they can follow to make their programs work with the programs of others.
* **Agile Manifesto**: Formal proclamation of four key values and 12 principles to guide an iterative and people-centric approach to software development.

**‘We Are Going to Ship’**

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**Should You Learn to Code?**

* **Objective-C:** The programming language Objective-C was originally developed in the early 1980s. It’s a general-purpose, object-oriented programming language that adds Smalltalk-style messaging to the C programming language.
* *Smalltalk:* is an object-oriented, dynamically typed, reflective programming language. Smalltalk was created as the language to underpin the "new world" of computing exemplified by "human–computer symbiosis." It was designed and created in part for educational use, more so for constructionist learning, at the Learning Research Group (LRG) of Xerox PARC by Alan Kay, Dan Ingalls, Adele Goldberg, Ted Kaehler, Scott Wallace, and others during the 1970s.