**Nearsoft Academy**

**Week #3**

**Lectures (8)**

**Video Reviews (12)**

**Cesar Dario Garcia Jiménez (Nearsoft Academy)**

[**cgarcia@nearsoft.com**](mailto:cgarcia@nearsoft.com)

**1st Video**

# **“Pale Blue Dot”**

Author: Carl Sagan

(1994)

Pale blue dot is a reflection made by Carl Sagan about a picture of the earth made from 3.7 billion miles from a spacecraft called “the voyager”, which he written on a book on 1994.

This is a reflection to put in perspective all our issues as humans and realize that we are part of something so much bigger, somethimes we live our complete existence without realizing that many of our issues are trivial to the big picture of things, but yet they are so meaningful to us in the little scope.

What i think?

I think that the universe still keeps many of his secrets from us, but perhaps one day we will understand it better and realize how our existence is connected to it and live our lives with more meaning and direction than we do today, we are part of something much more bigger and complex.

Some people say that our universe follows a mathematical distribution repeated over and over again, and that everything is connected from big to little scope, a fractal distribution that is Who knows...

https://www.youtube.com/watch?v=BTiZD7p\_oTc

**2nd Video**

# **“****Learn MapReduce with Playing Cards ”**

Author: Jesse Anderson

(2003)

This presentations show us how a Hadoop cluster works to process large amounts of data by splitting and distributing data amongs many “nodes” allowing them to process smaller chunks of data, dissasembly those chunks and create keys for addressing any part of the data, combine data between the nodes and return a reduced and organized stream of data, and this allows us to process data in a faster and more efficient way.

What i learned?

I found interesting how you can organize several processors to work as a cluster to process larger amounts of data, this opens up a new world of posibilities to work over big data process in a cheaper way.

**3rd Video**

# **“****Machine Learning: The Basics”**

Author: Ron Bekkerman

(2012)

Machine learning is a very interesting topic, the lecture give us a general approach of its application in predicting statistical behaviors, and how it can be useful to treat large amounts of data and be ables to solve complex problems, for example predicting if a tumor is benign or cancer based on its features and its changes over time, or classify your income email into important or Spam by your preferences statistical usage, machine learning is a science in progress and it is on the ground of the artificial intelligence so we will be seeing more of this on the future.

What I learned?

I found this lecture very clear about the topic because I have read about it before, but this video is able to explain very clearly the differences between clustering, classification and logistic regression methods to threat the inputs of data in order to be ables to classify it and understand their statistical behavior.

The only thing I would add to the video are some comments about the difference about supervised and unsupervised learning because machine learning involves a lot of more areas, and Ron starts jumps from the general to the particular without mentioning this.

Perhaps he also should show us some of the mathematical algorithms used in ML just to scare some of the viewers :P :).

**4th Video**

# **“****Fast Company Exclusive: Inside Google X”**

Author: The team at Google X

(2014)

Google X is a great team of people commited to find the greatest solutions to big problems, essentially problems that essentially affects millios or billions of people like energy problems in example.

What i think?

The team of google X are a great model of an agile team working on shooting to the moon, implementing all the modern lessons over innovation, they try to find solutions and improve them 10x, fail fast in order to obtain more and more knowledge , trying to use different paths, materials and methods knowing that this cycle of trying and failing fast will eventually bring to an optimum solution in a faster way.

I feel very excited about this video and what those guys do, it is amazing, but it is not an easy task to do because they are dealing with world size problems, trying to move us into a brighter future, Innovation is on the way of Google X.

**5th Video**

# **“Moonshot Thinking”**

Author: Google X

(2013)

What I think?

Motivating, remember your nature, you10r spirit and remember that you are capable of achieving incredible things, really big things, don’t limit yourself, shoot your objectives very high, and remember to carry the courage to try in yourself, be persistent and it is not easy, but you definitely can do it, you can achieve big things.

**6th Video**

# **“****The new, larger version of the Internet: IPv6”**

Author: Vint Cerf

(2012)

Informative lecture about the coming implementation of IPv6, the most recent version of the IP protocol, the communication protocol that allow us to have an address to send and receive packages over the Internet network.

What I think?

I think that, this is an opportunity field to do more research and maybe come with a solution with different approach because IPv6 is going to allow us to have more devices connected but the growth of devices it is becoming more and more exponential, we are having more devices like TV’s with Internet devices, Game Consoles, etc. and we have a new trend coming over that is the IoT, that would create a whole new market consuming IP addresses, so I don’t know what are the predictions for how long IPv6 will overcome this growth, but I think that eventually we will have troubles again and maybe we can start thinking in way to solve this problem forever right now.

**7th Video**

# **“****La mejor presentación de tu vida ”**

(2013)

This is a very entertaining presentation in where we found a lot of great tools for delivering an excelent presentation. The presenter share to us a toolbox of elements to include in our presentations to make them effective and entertaining.

My opinion:

This presentation is great, the speaker shows a great attitude and presents information with a great encouragment what elements we should keep in mind to achieve effective communication when we present something in fron of others.  
  
I think that those elements are well grounded and definitely believe in them, the same elements that the speakers talks about can be found in the book “Resonate” by Nancy Duarte, and I think that these are thinks to really have in mind and keep developing for ourselves.  
  
Why?, we as humans have some hardwired behavior to some estimulus, so the ideas presented in here are very value to trigger attention,long-term memory and motivation in our audience.

We must enforce our audience to go through 2 paths while presenting them any kind of information to make them hook with our ideas.

Two paths:

*Audience need to:*

**To Think To feel**

*How?, What should I give to them?*

**Content & Structure Emmotional Relation**

How do I stimulate them?

**Something to Think An emotional Spark**

*How can I wrap information to be diggested and get people hooked?*

**Data in Chunks Make people to participate**

*While doing this, what should I focus on?*

**Objective (Your Idea or thesis) Emotional Rythm to keep them on.**

**8th Video**

# **“Leading”**

By: Marshall Goldsmith

(2007)

Marshal Goldsmith share to us his professional lessons aquired over life, which will lead us to a better, more assertive and happier professional life.

So what is this lecture about?, about executive education, things that people don't do, or more important, things that people do that can be not as productive as you think.

Some of the goals over this lecture are:

1) Understand the Classic Challenges faced by succesful leaders.

2) Know how to use “FeedForward” (Feedback driven more positively).

3) To remember to Learn from proven models.

4) Discuss new applications of peer coaching.

What I learned?

I personally liked a lot all the advices presented in the lecture because as the expositor explains, it is natural for our culture to behave in some ways that aren't good at all, and still we keep falling onto theses behaviors, so as Marshal says...  
We always are looking for the things we DON'T DO and are missing from our lives, but maybe, we should look at the things we actually DO, and focus on that to create change, for example it is natural to us to judge to much or compete over being misserables.

The thing that I liked the most is the concept of “FeedForward”, I think it is a really good approach for giving and reciving feedback but with this wordplay it is easier to remember the intention of the feedback.

Some things things that will help us growth are letting go of the past, learn to listen to suggestion without judging and stop trying to change everything!.

To land theses concepts we need to take the next step that is really our biggest problem, that is EXECUTING!.

We are good at addressing problems in us and create solutions to change those, but we dont EXECUTE those solutions.

And just as a reminder of good habits I leave here a list:

* Ask
* Listen
* Think
* Thank
* Respond
* Involve
* Change
* Follow Up

and finally BE HAPPY! , we always desire this to others but you can go first!, and love what you are doing, if you are not loving it, you need to change that.

**9th Video**

# **“****Google and NASA's Quantum Artificial Intelligence Lab”**

By: Google

(2013)

This presentation is an insight of the future application of Quantum mechanics and how it is going to revolutionize the whole world.

What's my opinion?

There is a lot of study around Quantum mechanics and yet all the studies comes leaving us with more questions than answers, physicists have developed many theorys around the unanswered questions and it seems that we are getting closer and closer to uncover more mysteries around it.

This bring to us a new whole world of posibilities to understand more about our reality and our true posibilities in it.

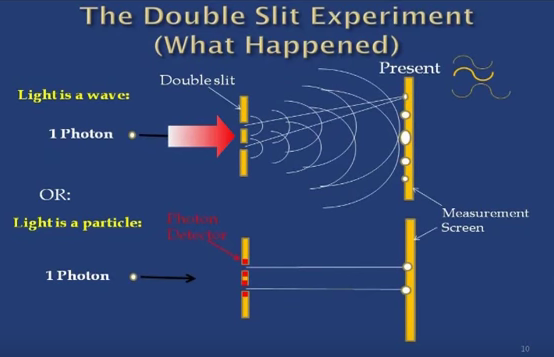
Quantum Computation is one of the most exciting areas in develop in which we are achieving some meaningful advances, it function in a very distinct way than our electrical devices, and the application of this devices is yet not fully understanded but it is a reality in progress and we will se more of it very soon.

**10th Video**

# **“****Dr Quantum - Double Slit Experiment ”**

(2006)

The Double Slit ExperimentIs a very famous experiment in which phycisists shoot electrons or photons to a wall with two slits, and they try to determine why particles baheve sometimes as a particle and sometimes as a wave.



What I learned?

The scientists found out that the experiment result was affected by the “observer effect”, and then particles follow some statistical distribution, and that the behaviors of photons changed his resultant pattern of hits on the wall, by the places they observe during the excersice, this is a rare effect that was discover by studing the bahaviors of particles in the Quantum world and it is something that we can not fuly understand how the mind of one observer can affect the things around him.  
  
This brings to us a new level of truth about our reality, because know now that we actually form an active part of our reality, we are'nt just inmerse into circumstances but that we actually help to create that reality.

Of course I dont fully understand what this is all about but I do have watched some interesting lectures on the same topic, I share one of my favorites with you.

In here the expositor try to explain the “Phantom dna experiment” which relates emotions to dna and matter around us.  
https://www.youtube.com/watch?v=emgcyOMoL\_c

**11th Video**

# **“****Measure for Measure: Quantum Physics and Reality”**

By: David Z. Albert, Sean Carroll, Sheldon Goldstein and Ruediger Schack

(2014)

When no one is looking, a particle has near limitless potential: it can be nearly anywhere. But measure it, and the particle snaps to one position. How do subatomic objects shed their quantum weirdness? Experts in the field of physics, including David Z. Albert, Sean Carroll, Sheldon Goldstein, Ruediger Schack, and moderator Brian Greene, discuss the history of quantum mechanics, current theories in the field, and possibilities for the future.

What are my thoughts over this video?

It is definitely very interesting to hear 5 experts in the fields of physics, debating about the legitimacy of some of the most popular theorys about Quantum Mechanics, why is this important to us?, it is critial to every concious human to understand the implications of understanding the true nature of the reality in which we all live.  
  
Now we are able to prove that our thoughts can change reality and physical matter, that is something awesome but it is one of the main problems of measure during the Quantum mechanics excersices because we intrinsically affect the results of every experiment we measure, interesting...

The main point in here is that, we are in the middle of the developing of Quantum mechanics answers, and every step forward changes the whole system for us directly from its foundations, so it is going to be interesting to see how this goes and if we can involve in that process somehow, it will be definitely very exciting to walk into the unknown and become part of the change.

**12th Video**

# **“**The Quantum Conspiracy: What Popularizers of QM Don't Want You to Know**”**

11By: Dr. Ron Garret

(2011)

This talk describes an alternative interpretation based on quantum information theory (QIT) which is consistent with current scientific knowledge. It turns out that there is a simple intuition that makes almost all quantum mysteries simply evaporate, and replaces them with an easily understood (albeit strange) insight: measurement and entanglement are the same physical phenomenon, and you don't really exist.

What are my thougths?

Personally I disagree with the inferences from the author because even though he is such a smart and prepared person, all his statements are not well grounded on scientific facts but it seems more like they are based on personal thoughts that might sound coherent to cover the holes in QM, so I can't really trust in any of the data of this video, even though I think that the idea of finding a different approach to try to give sense to a certain subject is good.

**1st Lecture**

# **“****Creating a User-Based Recommender in 5 minutes”**

From: <http://mahout.apache.org/users/recommender/userbased-5-minutes.html>

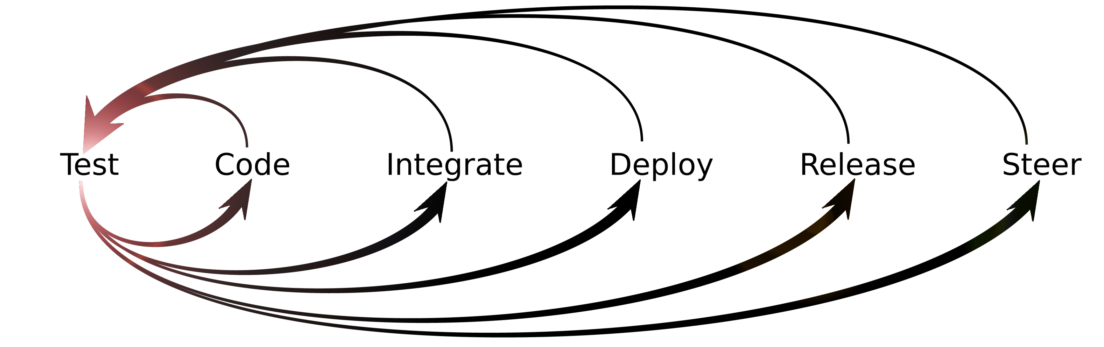
What I learned?

Well I didn't know anything about Mahout libraries and Maven and it is very intereseting how you can use mahout to create data models from a file and use som values from each data model to create a clasification system implementing algorhitms like “MapReduce” to do all this over large databases or huge input files.  
  
Still I have to read and learn more from it, I found this information very useful for future projects.

**2nd Lecture**

# **“Test Driven Development”**

From: <http://c2.com/cgi/wiki?TestDrivenDevelopment>



What I learned?

I never heard of this approach before in university (it's so wrong I know), and it is a very interesting approach to develop in big collaborative projects, my mentor shows me that this approach works very good because of course you are always testing your work before adding your “functional” piece of code to the project.  
  
What are the strongs points on this approach?  
As the lecture explain, when you define what you want to do, you first figure out how would you test that piece of software, that implies that you understand very well what the requirements are and then when you write your functional code, you are doing it more aware of the requirements and of course by testing that piece you can assure a level of quality that is very desirable for any project.

**3rd Lecture**

# **“UnitTest”**

From: http://martinfowler.com/bliki/UnitTest.html

What I learned?

Well it is interesting to read from the experience about unit testing, in here the writter Martin Fowler explain to us how some things have change in recent times, and some tips over how me should always test and why it is important to test.

He mention during the lecture an interesting approach that he takes which is the “SelfTestingCode” which is about writing comprehensive automated in conjunction with the functional softwares, this idea enforces the previos lecture in this document, about the Test Driven Development, I will learn more over this topic to be able to implement this kind of practices into my work.

**4th Lecture**

# **“XUnit”**

From: http://martinfowler.com/articles/mocksArentStubs.html

What I learned?

XUnit is the family name given to bunch of testing frameworks that have become widely known amongst software developers. The name is a derivation of JUnit, the first of these to be widely known.

Although it was created for Smalltalk was Junit which took the greatest popularity and allowed to others to port it to many other languages. Even there is a port for Smalltalk from Junit. Curiously, Junit was created in a long flight and then creators asked for others programmers being tester about what they had developed.

Junit have been a pillar at Xtreme Programming and Test Driven Development methodologies and it have changed the way that tests are seen in the last decade.

Junit has the red/green bar, that indicate if the test have been successful or have failed. It allows to testers making more comfortable the way they test their own code, integrating it to the IDE.

**5th Lecture**

# **“Mocks Aren't Stubs”**

From: http://martinfowler.com/articles/mocksArentStubs.html

What I learned?

What is this about? As the author explains, in the recent testing practices “Mocks” have become popular, so what are Mocks?, in the author words:  
“*The term 'Mock Objects' has become a popular one to describe special case objects that mimic real objects for testing. Most language environments now have frameworks that make it easy to create mock objects. What's often not realized, however, is that mock objects are but one form of special case test object, one that enables a different style of testing. In this article I'll explain how mock objects work, how they encourage testing based on behavior verification, and how the community around them uses them to develop a different style of testing.*”.

The problem exposed in the lecture is that there is some confussion around “Mocks” and “Stubs”, which are another common helper to test enviroments.

But there are 2 differences to stand between them and are important to keep in mind.

On the one hand there is a difference in how test results are verified:

1) A distinction between state verification and behavior verification.

2) On the other hand is a whole different philosophy to the way testing and design play together, which I term here as the classical and mockist styles of Test Driven Development.

Mocks use behavior verification, so they serves to verify, they are usefull during “Doble tests”, so what are Double Tests, sometimes when you need to test a unit of code, it has dependencies to work properly, so you have two options, to do a double Test using the dependencies therefore testing more units implicitly at the time or use Mocks to simulate the dependencies.

Another author citated explain other important elements and here is the definition:

* **Dummy** objects are passed around but never actually used. Usually they are just used to fill parameter lists.
* **Fake** objects actually have working implementations, but usually take some shortcut which makes them not suitable for production (an in memory database is a good example).
* **Stubs** provide canned answers to calls made during the test, usually not responding at all to anything outside what's programmed in for the test. Stubs may also record information about calls, such as an email gateway stub that remembers the messages it 'sent', or maybe only how many messages it 'sent'.
* **Mocks** are what we are talking about here: objects pre-programmed with expectations which form a specification of the calls they are expected to receive.

Of these kinds of doubles, only mocks insist upon behavior verification. The other doubles can, and usually do, use state verification.

Classical and Mockist Tests:

The **classical “Test Doubles”** style is to use real objects if possible and a double if it's awkward to use the real thing. So a classical TDDer would use a real object and a double for the mail service (from the example presented on the original link). The kind of double doesn't really matter that much.

A **mockist “Test Doubles”** practitioner, however, will always use a mock for any object with interesting behavior. In this case for both the Object and the mail service.

Although the various mock frameworks were designed with mockist testing in mind, many classicists find them useful for creating doubles.

I still dont understand all the terms used in the lecture because I haven done any software testing so far but i'm sure I will be reading and practicing more on this.

**6th Lecture**

# **“Java Build Tools: How Dependency Management Works with Maven, Gradle and Ant + Ivy”**

From:http://zeroturnaround.com/rebellabs/java-build-tools-how-dependency-management-works-with-maven-gradle-and-ant-ivy/

What I learned?

This is a recent practice for creating and documenting java projects without having to include all your libraries and “.Jar's” to your projects thanks to the approach of tools like maven that allows us to declare all the dependencies in a declarative way in just one file, and maven, gradle or ant+ivy will take care of manage all the packages needed.

They work differently at managing packages though so will be reading more on this very soon.

**7th Lecture**

# **“****6 Top .NET Package- and Dependency-Management Tools”**

From:https://visualstudiomagazine.com/articles/2014/03/01/6-top-net-package-and-dependency-management-tools.aspx

What I learned?

In the Software development process there is always been the necessity of getting together all the libraries and dependencies needed to some software to work while it is in development phase, the .NET framework faces this problem with various tools for manage dependencies in a more elegant way, that enable teams of devs to collaborate more easily and in a cleaner way.

This are the top 6 .NET Package and Dependency tools according to the visual studio magazine:

* NuGet, which is the more known in community and it's even recognized by Microsoft and it's integrated by default in Visual Studio. And besides its GUI Integration it also has a command-line utility. It allows to developers include their own package to repositories, according the open-source philosophy.
* Open Wrap, another popular package manager, that is very similar to NuGet, but it's only available by command line but has support for both NuGet and Open Wrap packages.
* Npanday, the most similar to Maven for .NET. However Maven is more like a task runner and dependency-management, but it could be a way to migrate yourself from Java to .NET
* Chocolatey NuGet, not so bigger like the others before but Chocolatey is a general-purpose “tool-enabler” and “silent application installer”. It is based on NuGet and share some traits, like pushing your own packages
* Ninite is not a open source focused tool, so you can't provide your own packages to repository, but it allows to get the latest version of the apps.

.NET better known as the “dark side” among some of my developer fellows, is doing a great job to compete with the open source developing tools that are allowing more people to collaborate and work on great projects, I hope we learn how to get the best of all this tools to create great things.

**8th Lecture**

# **“What is the difference between Bower and npm?”**

From:http://stackoverflow.com/questions/18641899/what-is-the-difference-between-bower-and-npm

What I learned?

We have these two options available to work on Web Development, but the difference resides (according to the lecture) that:  
  
[**npm**](https://www.npmjs.org/) is most commonly used for managing Node.js modules, but it works for the front-end too when combined with Browserify and/or $ npm dedupe.

[**Bower**](http://bower.io/) is created solely for the front-end and is optimized with that in mind. The biggest difference is that npm does nested dependency tree (size heavy) while Bower requires a flat dependency tree (puts the burden of dependency resolution on the user).

I would infer that Bower is better for big Projects where performance is critical, because JavaScript itself has itself heavy compiling dependency and adding npm usage will affect more the performance than bower.

**Personal Summary:**

This week has been different to others because firstly:

In the personal stage I have organized the flow of my work differently, and I felt more relaxed while doing the lectures and videos but actually even though I have changed my priorities for achieving all the tasks, I could not dedicate enough time to the programming problem wich is the most exciting part of this, but compared to week 2, it was so awful to be wanting to focus on the programming excersice from the beginning and having to do lectures and videos in superspeed. I still have to found a way of being able to achieve finishing all the work.  
  
I do have some blockers this week (and in the whole 3 weeks), the first and more important is that we did not have internet at home to work effectively extra hours, and in this week I broke the boot of my laptop because it failed during the installation of some updates. So loose almost a day of work, because I did not have internet on home to find a solution or get the distro to re-install...

In the team scope I feel very comfortable working with the team, we are now more conciousnes about spliting the work and having to get the week work done at least as a team.

I did not know anything about software testing, other than it exists, but I found this practice very interesting and I will keep learning more on this, also the videos are very interesting because they are selected from very prepared speakers and the topics are modern but I wish I could see them in calm, to absorb them and the lectures better.

To refer the programming excersice I did not have the time to go forward on this, I install the Java SDK on my machine, download and installed and IDE to work on JAVA (InteliJ), installed Maven, and downloaded te Mahout libraries but I could no get the code working because I have my dependencies declaration broken over the maven POM.xml document, and I would worked on it more but I run out of time, next time I will focu more on the programming excersices because I feel like I am being leave behind.

Have a great weekend and greetings.