

Long-Term Career-Development of Software Programmers (*In Applicable R&D*)



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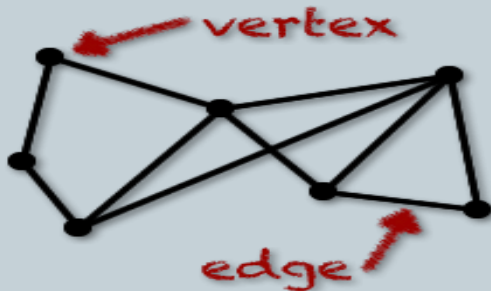
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“Big Data” & CPU-bound apps. (exmp. 1)



TWITTER

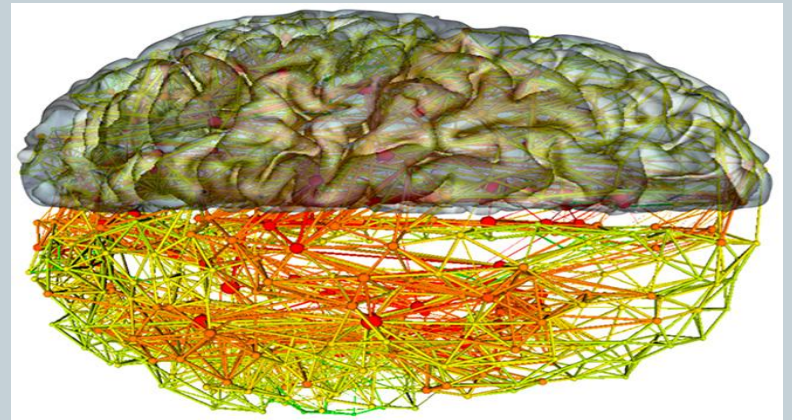
Around 62 Million Vertices
~1.5 Billion Edges



“Big Data” & CPU-bound apps. (exmp. 2)



NEURAL NETWORK: “BRAIN RESEARCH”



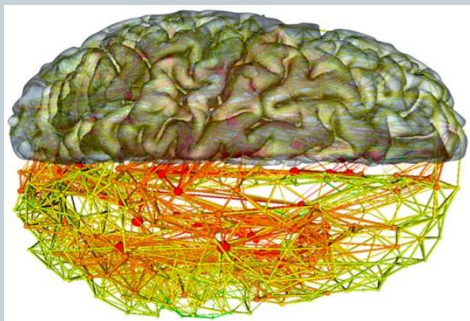
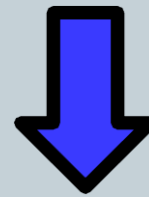
Around 89 Billion Vertices
~100 Trillion Edges

“Big Data” & CPU-bound apps.

Memory Estimation



Just One Minute..60 Seconds
Samples: 10 times per second
600 samples per minute



Around 130 Terabyte

The Purpose



Recruiting the
High-Level
Programmers,
Software Developers

~1% of the candidates

Applicable Research & Development



- Biology
- Physics
- Chemistry
- Medicine
- Astronomy
- Mathematics
- Search Engines (Google, Bing..)
- Economy
- Networks
- Military apps
-

Simple Facts...

Software Development Env. & Tools



- ***DATA MINING(DM) & ARTIFICIAL INTELLIGENCE(AI)***
ALGORITHMS ARE THE BASIS FOR THESE APPS
- MOST OF THE ALGORITHMS ARE PROGRAMMED IN
JAVA

Market Needs

*Experienced
Human Resources*



- *Cognitive traits*
- *Personality (emotional, social..)*
- *Performance style*
-

*Sophisticated
Software Tools*



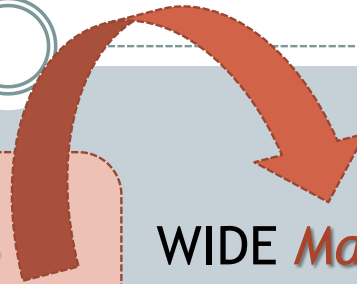
- ✓ *Data Mining*
- ✓ *Artif. Intelligence*
- ✓ *JAVA*

The Complexity....

**SOPHISTICATED
SOFTWARE TOOLS**



- ✓ *Data Mining*
- ✓ *Artif. Intelligence*
- ✓ *JAVA*



WIDE *Mathematical* Knowledge

WIDE *Computer Sciences* KL.

The Complexity....

**SOPHISTICATED
SOFTWARE TOOLS**



- ✓ *Data Mining*
- ✓ *Artif. Intelligence*
- ✓ *JAVA*



WIDE *Mathematical* Knowledge

WIDE *Computer Sciences* KL.

**It takes
YEARS
to get
wide Knowledge & Professionalism**

The Complexity....

**SOPHISTICATED
SOFTWARE TOOLS**

- ✓ *Data Mining*
- ✓ *Artif. Intelligence*
- ✓ *JAVA*

WIDE *Mathematical* Knowledge
WIDE *Computer Sciences* KL.

It is not enough to generally understand the algorithm/s

It is not enough to know JAVA programming lang. well

The Complexity....

**SOPHISTICATED
SOFTWARE TOOLS**

- ✓ *Data Mining*
- ✓ *Artif. Intelligence*
- ✓ *JAVA*

WIDE *Mathematical* Knowledge

WIDE *Computer Sciences* KL.

Programmers should have
deep understanding,
high-level of abstraction &
high-level of integration

Lets Face It !!

The Problem:

- too much data
- Too much analysis time
- too much resources

The Clue:

- heavy duty HW
- wide software tools
- Sophisticated algorithms

The sting: even though – far away from the optimal & efficient solution

The solutions is based on Two Dimensions

a) Technical

b) Personal/ity

CONFIDENTIAL

Proposed Solutions



a) HIGH PERFORMANCE COMPUTING (HPC)
Techniques

Closing the Gaps...



*Expectations
& Aspirations*



The Reality

Closing the Gaps...

High Performance Computing



*The **BEST** Execution*

Effectiveness: “*WHAT*” to do?

Efficiency: “*HOW*” to do?

Closing the Gaps...

High Performance Computing



Effectiveness

+

Efficiency

equals

MONEY..

BIG-money

- ***Human Resources***
- ***Machines***
- ***Other resources***
- ***Overheads***

Trends in HR

(Human Resources)



- ❖ From “administrators” to “strategic partners”
- ❖ Involvement in key-organizational decisions
- ❖ Thinking eHRM or HRIS
- ❖ HR focus:
 - Talent sourcing, acquisition & retention
 - Employee systems of engagement
 - Performance & productivity analysis
 - Learning management
 - Succession planning... *and much more*

Trends in HR technology



- ❖ Recruitment process “going” digital
- ❖ Candidates look for & apply to jobs online
- ❖ Remote assessment
- ❖ Interview through video, text & audio tools “Social” referral recruit.
- ❖ Create job visibility
- ❖ Non-barriers of geography in the online space
- ❖ *Gamification* – using gaming mechanism to create simulated env.
- ❖ The domination of mobile

Trends in HR technology



Aquent (Boston)

Leading employment agency

*Using an advanced front-end
coding simulator*

*To solve coding problems in
real-time*



Corporate learning:
Massive Open Online Courses (**MOOCs**)

**From
Descriptive analysis
to
Predictive analysis**

"As money comes to HR technology, so do new ideas and smart people. The result: we are seeing one of the most innovative times ever in the HR technology market."

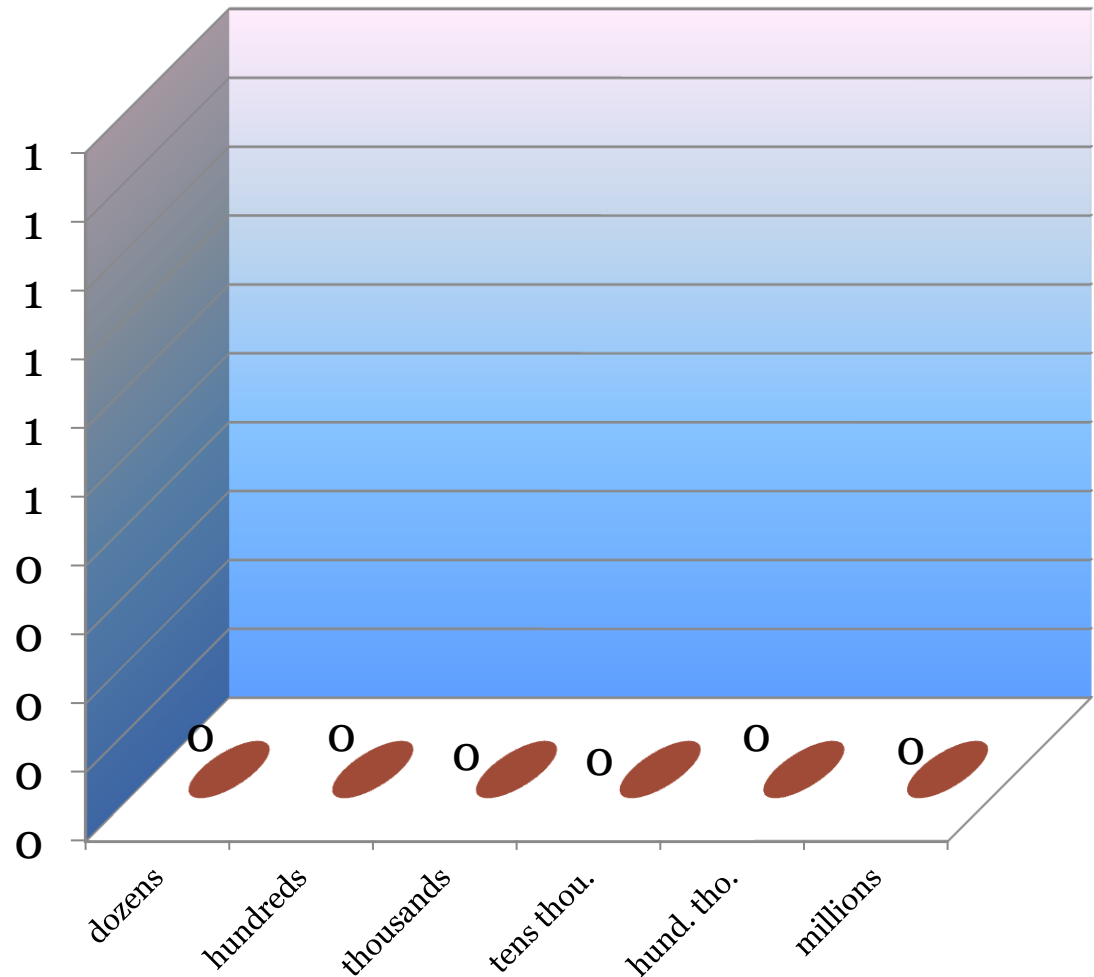
Josh Bersin, Principal and Founder, Bersin by Deloitte



Quick "Quiz"

Man/Woman
opens the class
door and peeps
for one second..

Computer's
camera takes 2-3
seconds video of
the class...



What actually happens in this room?

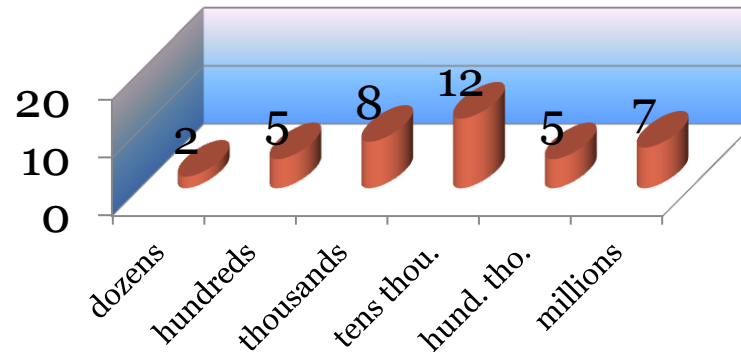


Quick "Quiz"

One man/woman opens the class door and peeps for one second..

Computer's camera takes 2-3 seconds video of the class...

The man/woman would describe the correct situation ***IMMEDIATELY***



5 to 8 million
different checks,
situations, decisions...

What actually happens in this room?

Practical Steps...



- Recognize the “long-distance runners”→
“long-term” career development [HR]
- Improving the apparatus - to identify
the long-term Careers’ developers [TECH.]
- Cognition traits: intensive training-DM/AI/java..
- Must: tight & adjacent relationships between
academy-industry
- Increasing the budgets for training (5-7%) [organization]
- Using new e-learning techniques
- More resources in succession-planning

Q & A

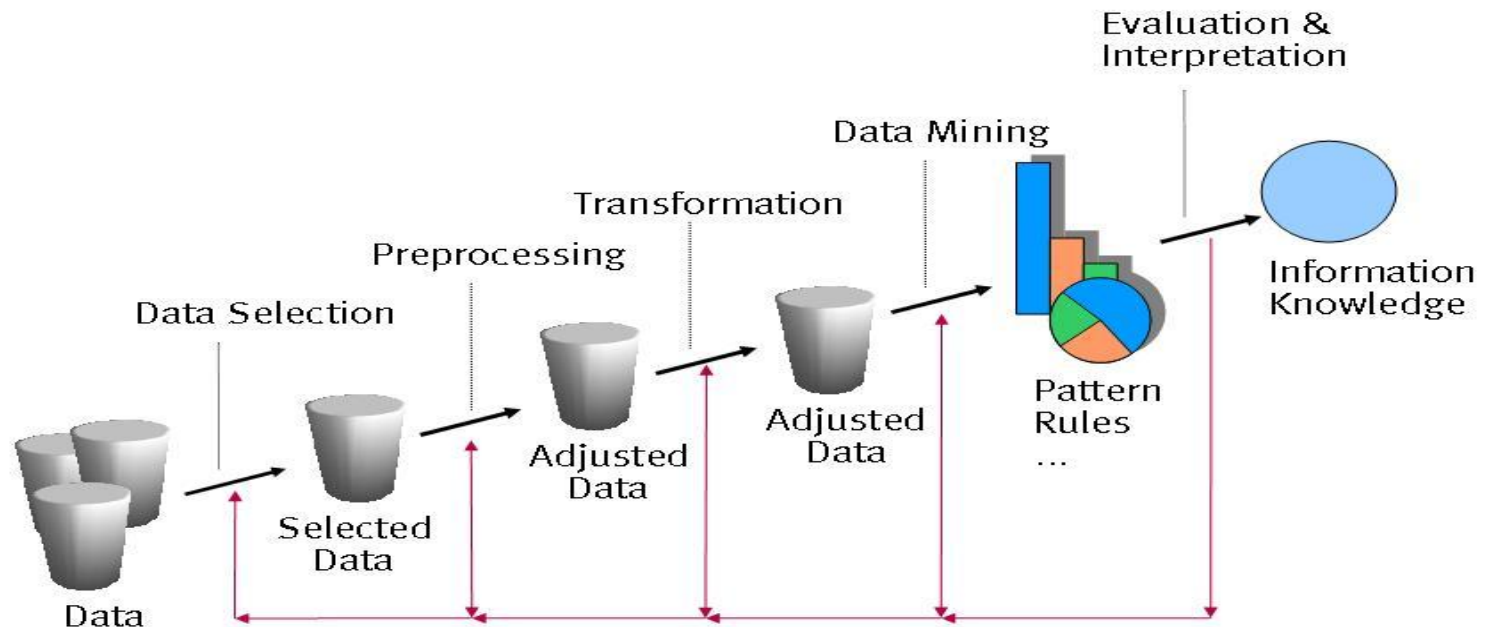
10x ..

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General Data Mining Model

Data Mining Model



KDD process (Knowledge Discovery in DB)

