MAHIDOL UNIVERSITY

Wisdom of the Land

[SCPY204]

Computer Programing

for Physicists

Class 10: 22 Mar 2017

Content: Data visualization, Unix, Introduction to Algorithms

Instructor: Puwis Amatyakul

MAR

22

2017

“The Mask Singer Final Round ”

Today's Goals

Part I: [Quiz] Data Visualization

Part II: Unix (Linux) and Web

(Part III: Introduction to Algorithm**)**

Data Visualization: Quiz

Quiz 04: Data Visualization
Write Octave script to plot the earthquakes distribution under the interesting area of your choice.

- ✓ The data can be obtained from USGS website.
- ✓ The interesting area would be Japan, Chile, Sumatra, San Andreas, …
- ✓ Make the plot looking great: font, label, …
- ✓ Send the picture and the script of it to my email.
  - ✓ Subject: [Quiz04] u5805xxx

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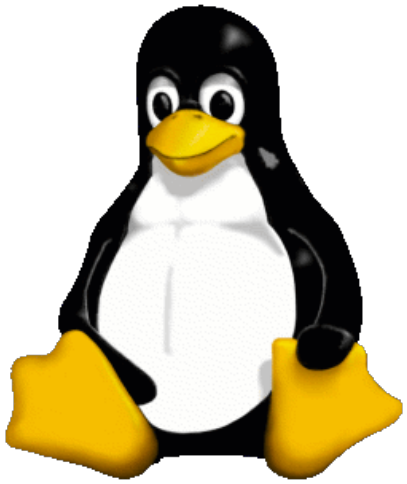
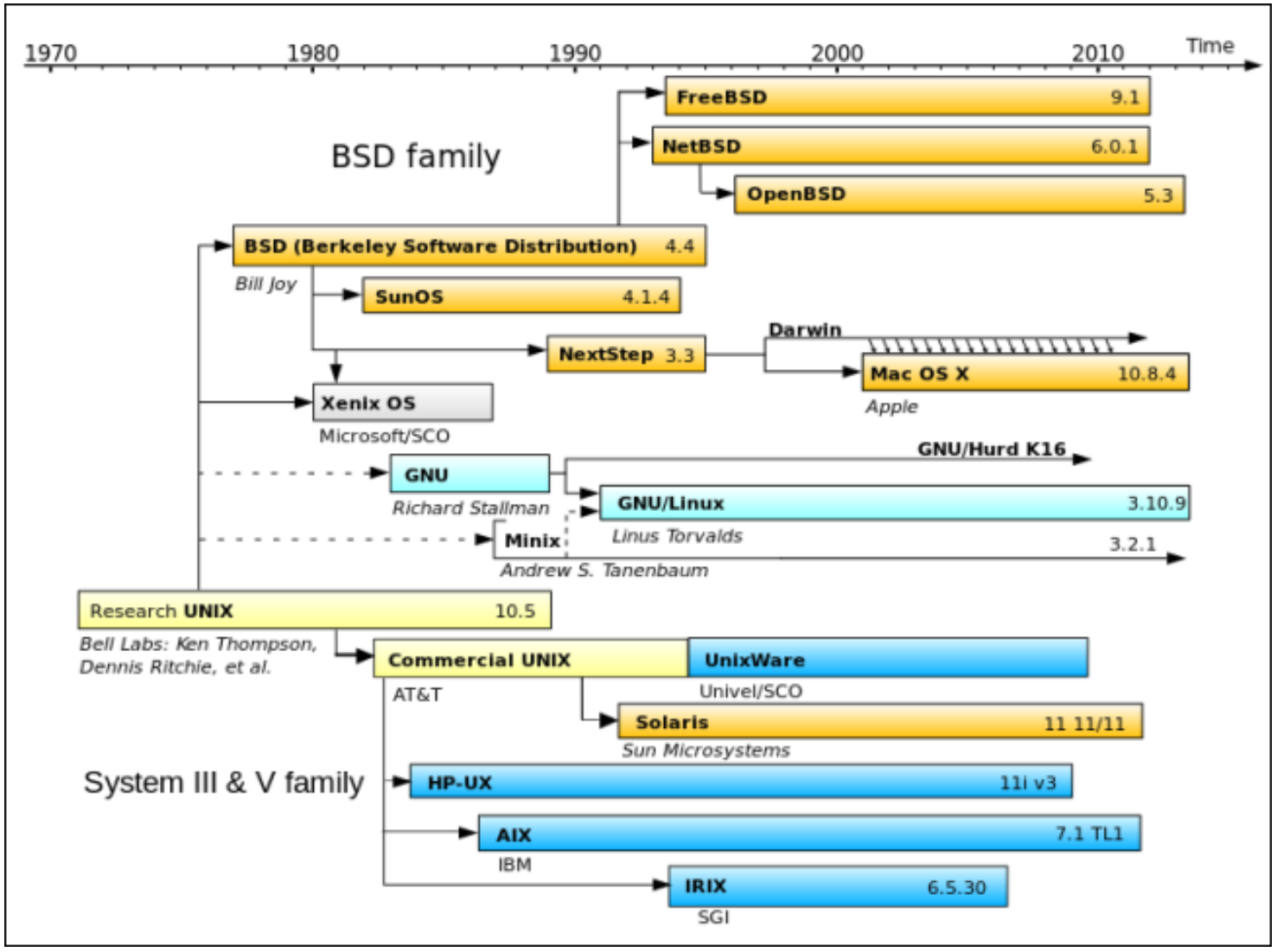
Unix: Introduction



- ✓ In the late 1960s,
- ✓ Researchers from General Electric, MIT and Bell Labs joined
- ✓ Develop an ambitious multi-user, multi-tasking OS for mainframe computers known as MULTICS (Multiplexed Information and Computing System).
- ✓ Later evolve to **Unix** by Ken Thompson.
- ✓ The concept of the **Linux** mascot being a **penguin** came from Linus Torvalds, the creator of **Linux**.

Unix: Introduction

Unix development timeline



Source: Wikimedia Commons

Unix: in practice

How you can try Unix

- Use your own Unix-like system (Linux, Mac, Cygwin)
- Connect to a Unix server
  - **[Connection tool]** http://www.putty.org
  - **[File transfer]** https://filezilla-project.org
  - **[A server]** gph.sc.mahidol.ac.th
    - Username: u5805xxx
    - Password : ”

How to use Unix

Source: http://www.ee.surrey.ac.uk/Teaching/Unix/

Try worink with C and Python inside Unix shell

Ex: Print * triangle or anything harder than this.

How create a simple web

Source: https://www.w3schools.com/html/

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Algorithm: Analysis

Solving Strategy
- ✓ Loop and conditional structures
- ✓ Expression

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Problem → **Algorithm**

Solve the program (properly)

How efficient it perform?

Analysis **Comparison**

Source: https://www.crowdanalytix.com/blog/explaining-machine-learning-algorithms-to-business-executives

Basic Algorithms: Sort and Selection

- ✓ Can you just do these simple problem?
  - ✓A function to do ascending/descending sort.
  - ✓A function to find maximum and minimum value.
  - A function to find any input value.
  - A function to find value in a given range.
  - A second largest or smallest value.
- ➢ Can you do it in a more **efficient** ways?