# NOTICE!

- These materials are prepared only for the students enrolled in the course Distributed Software Development (DSD) at the Department of Computer Science and Engineering, University of Mälardalen, Västerås, Sweden and at the Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia (year 2013/2014).

- For all other purposes, authors' written permission is needed!

- The purpose of these materials is to help students in better understanding of lectures in DSD and not their replacement!
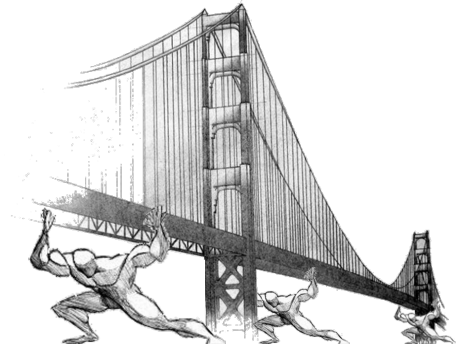
MÄLARDALENS HÖGSKOLA

Distributed Software Development

MÄLARDALENS HÖGSKOLA

All the team

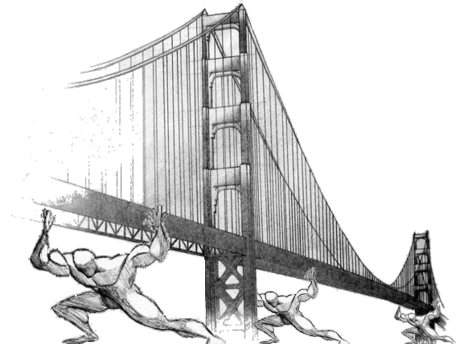# Real-Time Bridge Monitoring Project Vision
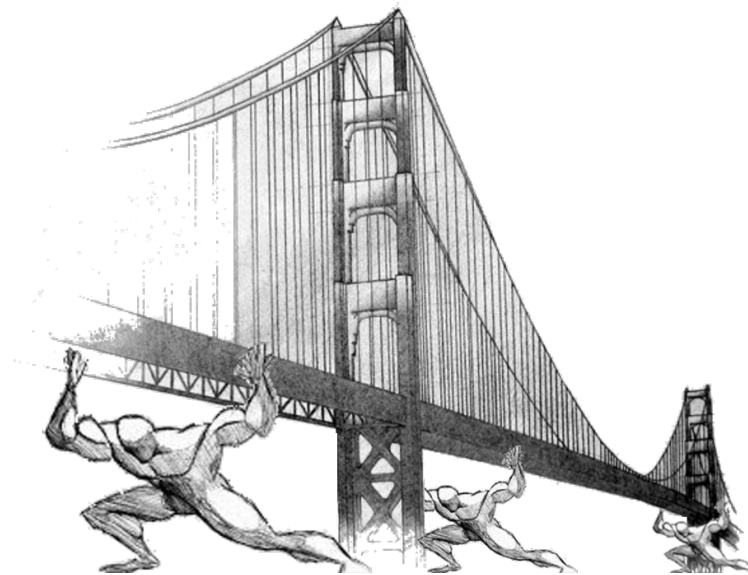
Overview

- ## Team Organization
  - The Group
  - Roles and Responsabilities
  - Team Communication

- ## System description
  - Real-Time Bridge Monitoring System
  - Functionalities

- ## Architecture and Technologies

MÄLARDALENS HÖGSKOLA

Team Organization

- ## The Group

  - ### PoliMi Team

Andrea Bottoli (PoliMi)　　　　Lorenzo Pagliari (PoliMi)　　　　Marko Brčić (FER)
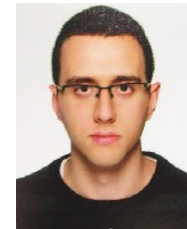
  - ### MDH Team
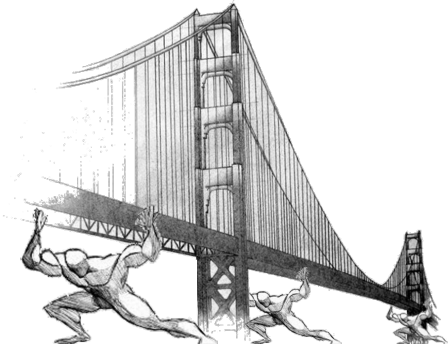

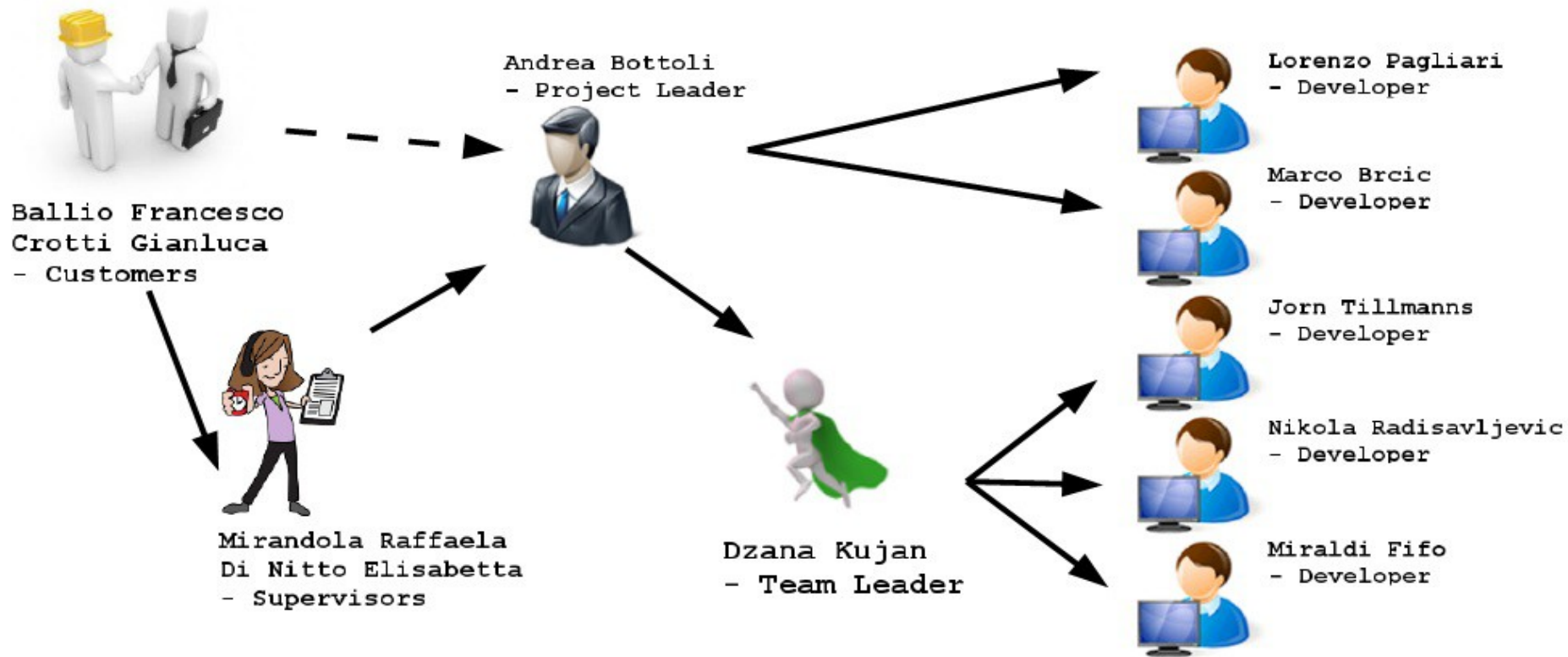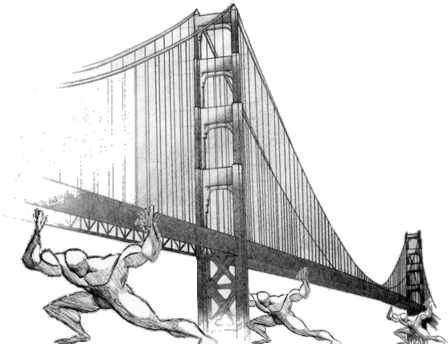Dzana Kujan (MDH)　　Jörn Tillmanns (MDH)　　Miraldi Fifo (MDH)　　Nikola Radisavljevic (MDH)

Team Organization

- Roles and Responsabilities

Team Organization
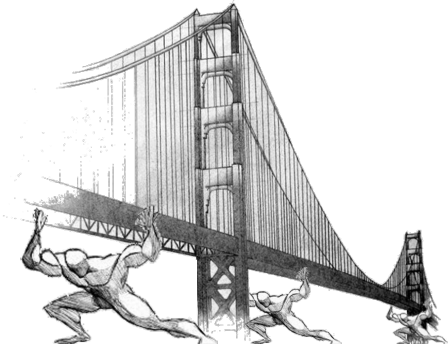
- Communication
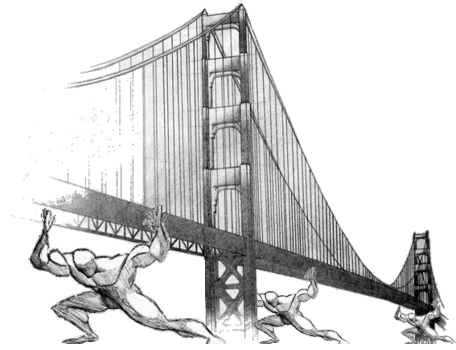
System Description

- **Real-Time Bridge Monitoring**
  - People must take decisions during crisis
  - Based on confident data from math formulas
    - Bridge condition
    - Structural damage
    - Stresses
  - Store historical data to make some statistics
  - Show data on local and remote UI
  - User friendly UI

MÄLARDALENS HÖGSKOLA

System Description

- ## Functionalities (I)
  - Gather sensors's informations
    - Anemometer: wind speed
    - Hydrometer: water level
    - Echo sounder: river bed depth
    - Cam: pillars pictures
  - Store informations into a DB
    - Current data
    - Historical data

System Description
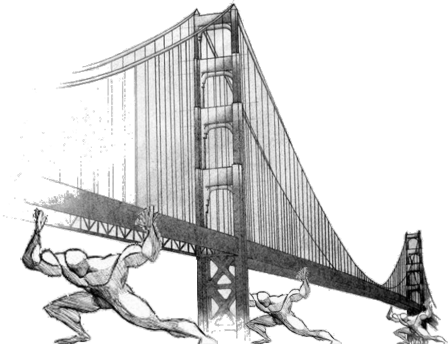
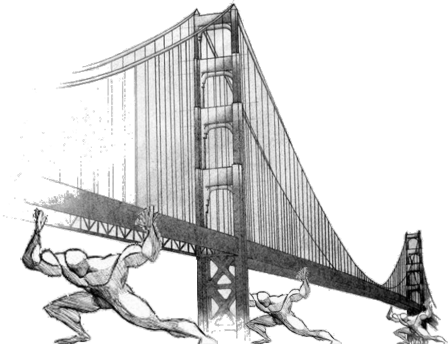- ## Functionalities (II)

  - Make calculations on the data

    - Structural calculations, stresses, ...

  - Display data to users

  - Alert the users (pop up, e-mails, ...)

    - Green: "ok, it's good"

    - Yellow: "wait a moment...something's wrong"

    - Red: "ALARM, bridge is crashing down!!!!"

  - Personalize bounds, views, ...

MÄLARDALENS HÖGSKOLA

System Description
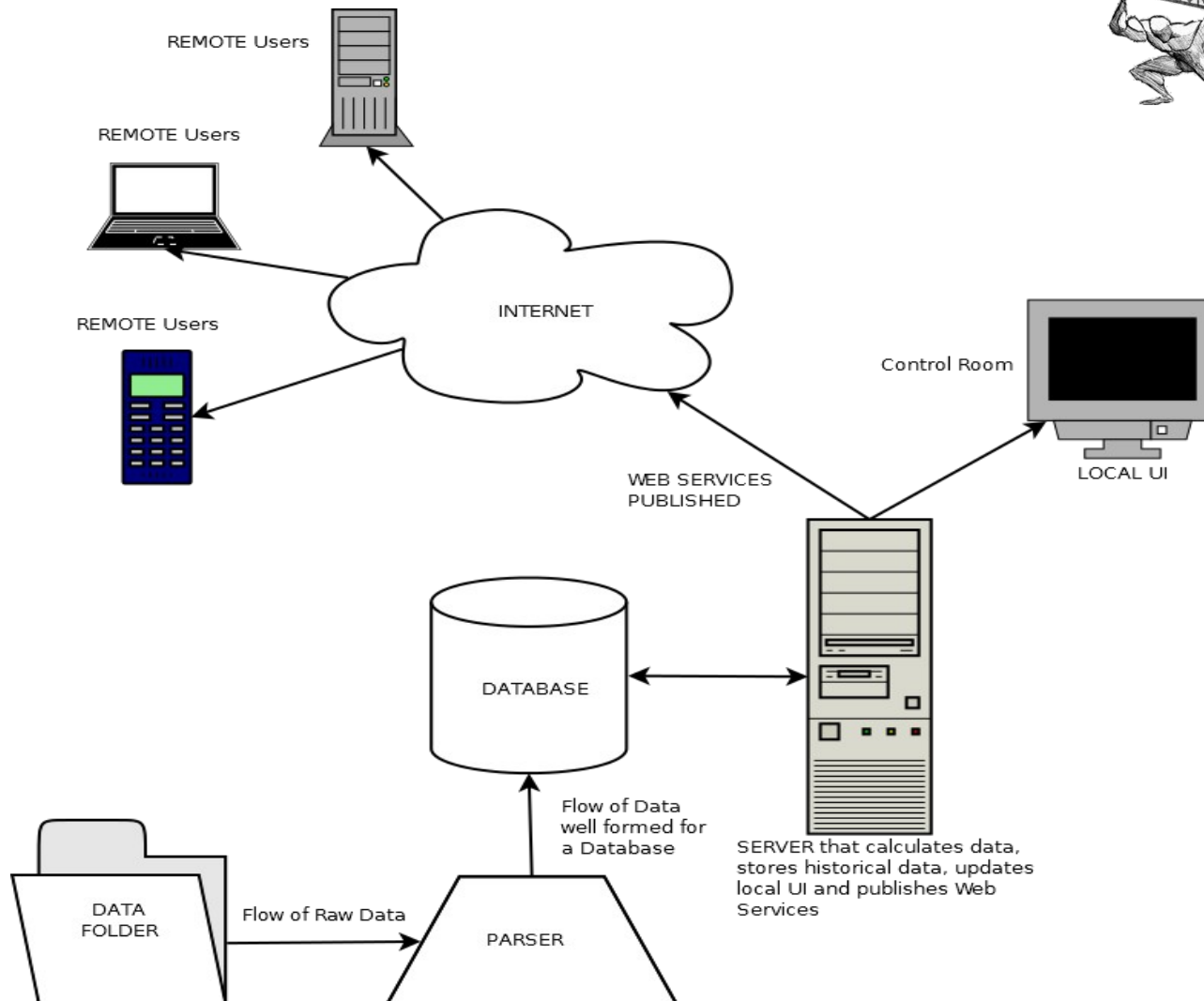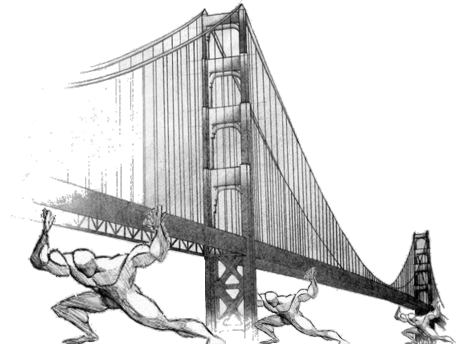
- **Functionalities (III)**
  - Graphs and statistics (with personalizations)
    - Display and browsing temporal trends
    - ...the flood is increasing his speed...
    - ...the wind is changing speed...
    - ...last year when X happened, Y happened...
  - Web Services
    - Remote users could use the system functionalities
    - Tablets, Smartphones, ...

Architecture

REMOTE Users

REMOTE Users

REMOTE Users

INTERNET

Control Room

WEB SERVICES
PUBLISHED

LOCAL UI

DATABASE

Flow of Data
well formed for
a Database

SERVER that calculates data,
stores historical data, updates
local UI and publishes Web
Services

DATA
FOLDER

Flow of Raw Data

PARSER

MÄLARDALENS HÖGSKOLA
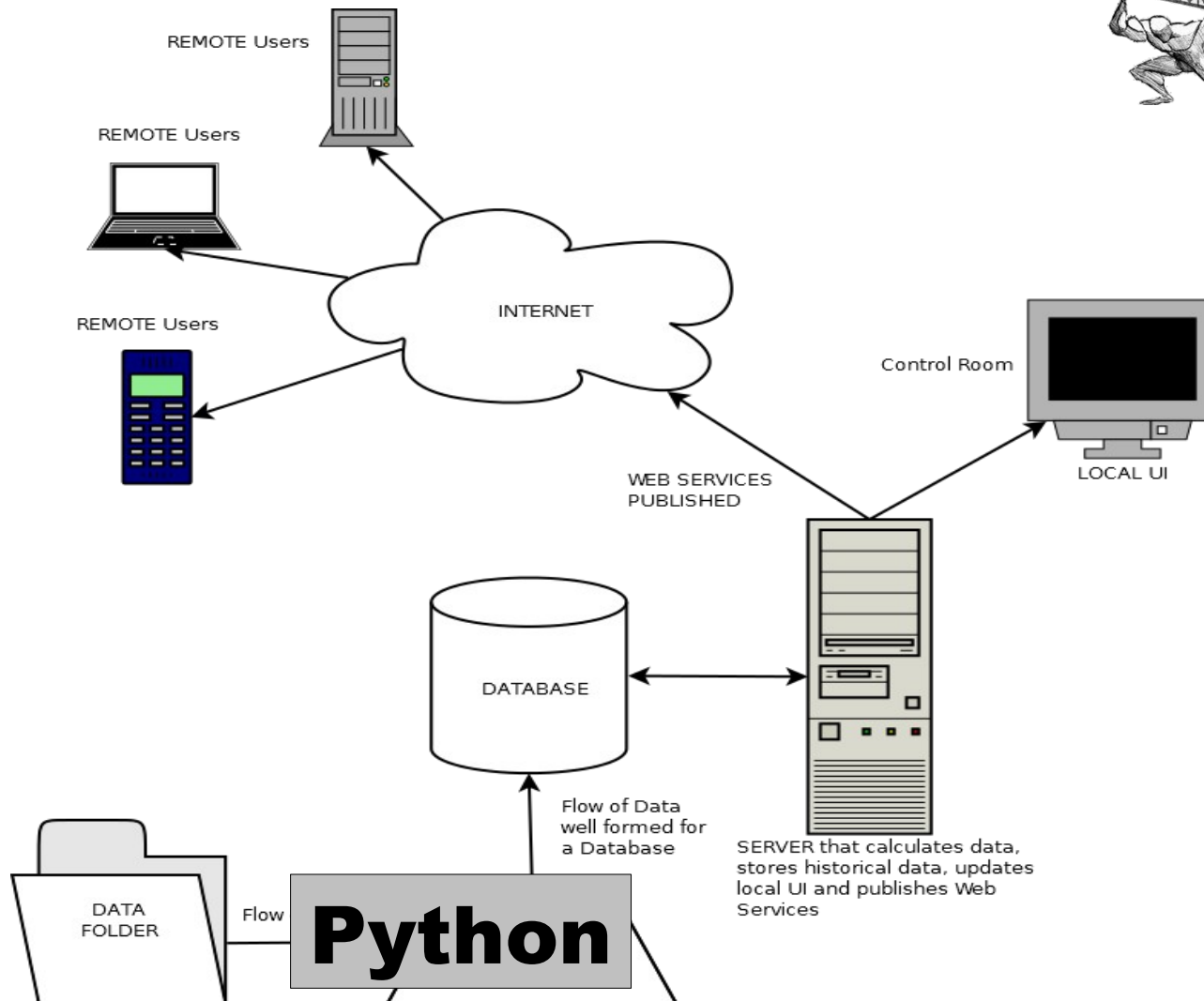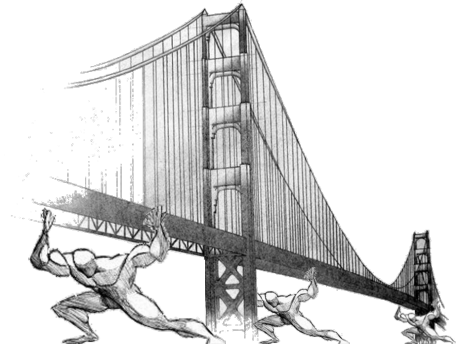
Architecture

Architecture
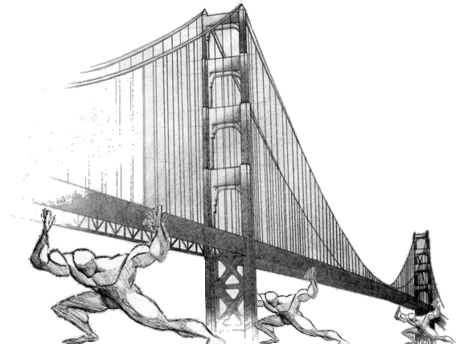
Architecture

Architecture

Project Plan
20.10 - 23.11

Project Plan
24.11 – 28.12

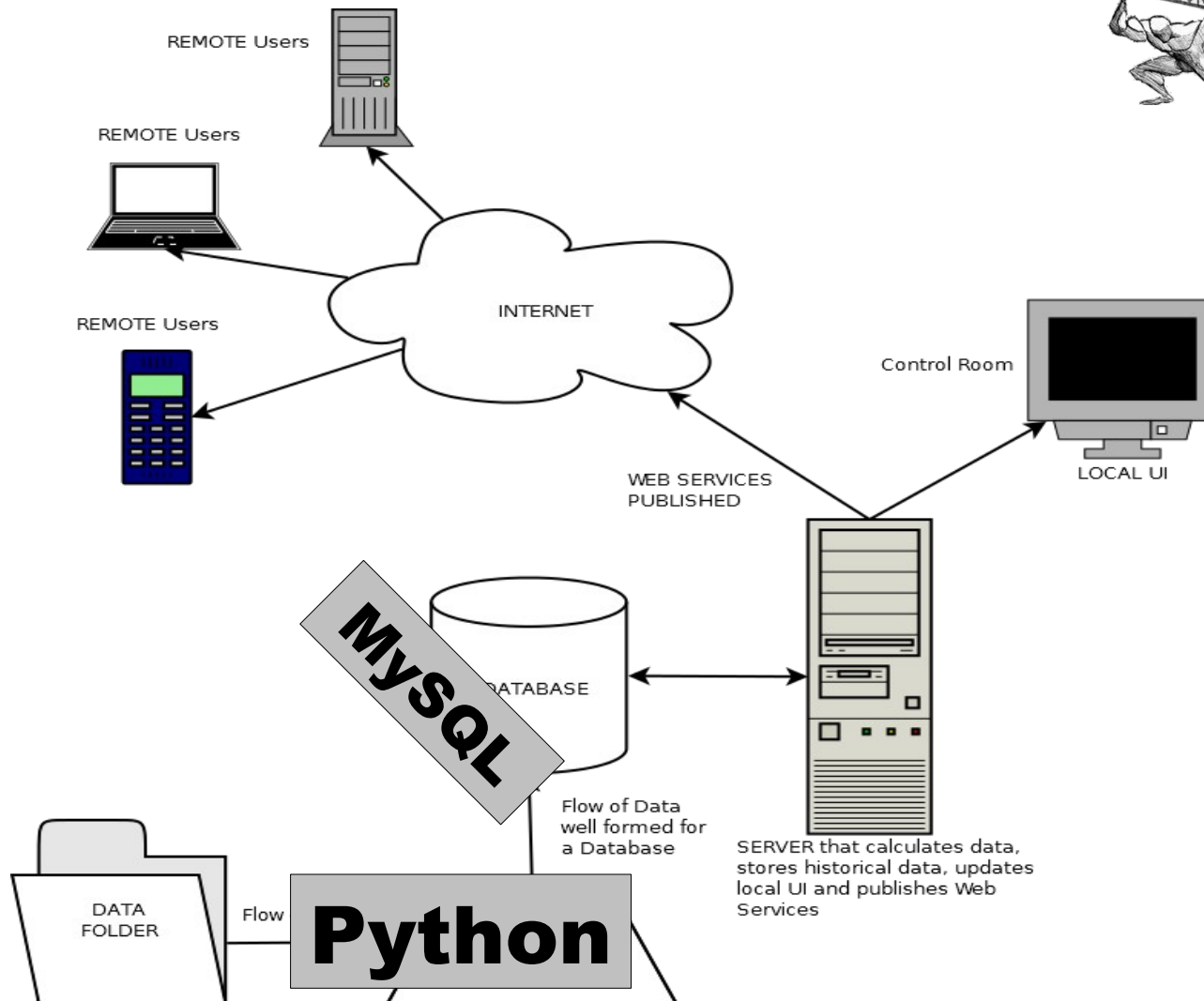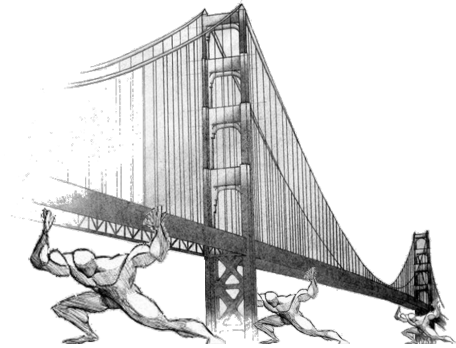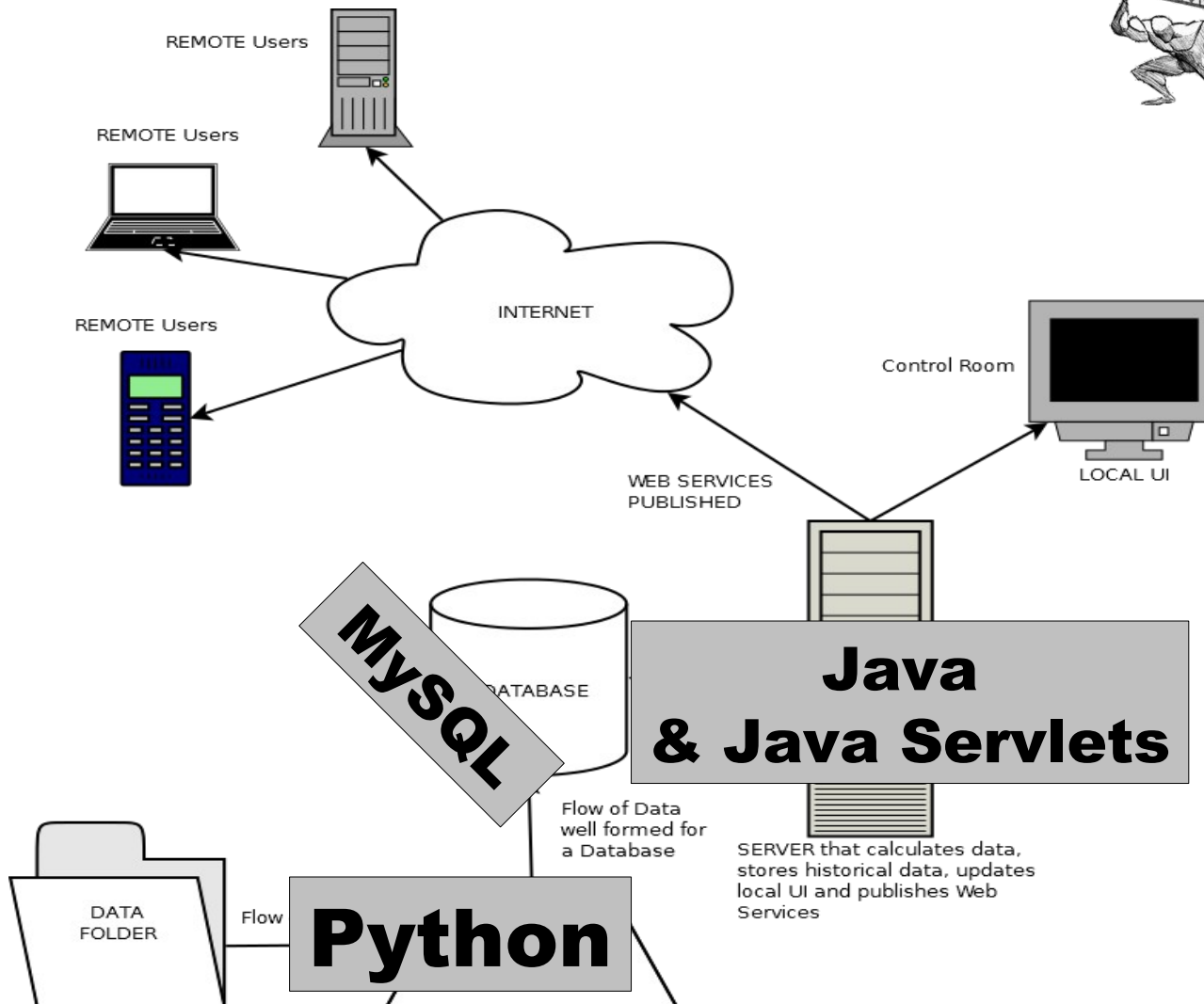| Aufgabenname	Nov 24								Dez 1								Dez 8								Dez 15								Dez 22							
	S	M	D	M	D	F	S	S	M	D	M	D	F	S	S	M	D	M	D	F	S	S	M	D	M	D	F	S	S	M	D	M	D	F	S	S	M	D	M	D	F	S
Requirements Analysis																																								
System Design																																								
Programm Design: Alpha_Prototype																																								
Implementation: Alpha_Prototype																																								
Testing: Alpha_Prototype																																								
Programm Design: Beta_Prototype																																								
Implementation: Beta_Prototype																																								
Testing: Beta_Prototype																																								
Programm Design: Final_Version																																								
Implementation: Final_Version																																								
Testing: Final_Version																																								

Project Plan
22.10 - 22.11

Aufgabenname	Dez 29							Jan 5							Jan 12						
	S	M	D	M	D	F	S	S	M	D	M	D	F	S	S	M	D	M	D	F	S
Requirements Analysis																					
System Design																					
Programm Design: Alpha_Prototype																					
Implementation: Alpha_Prototype																					
Testing: Alpha_Prototype																					
Programm Design: Beta_Prototype																					
Implementation: Beta_Prototype																					
Testing: Beta_Prototype																					
Programm Design: Final_Version																					
Implementation: Final_Version																					
Testing: Final_Version			██																		

Risks

- Communication:
  - Within distributed groups (SWE, ITA, CRO)
  - Within the team
  - With customer

- Still unknown input data and data format

- Unclear requirements