Introduction

Programming in Network Environments

Biomedicine Engineering Degree 2018-2019

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Course Goals

To understand the **computers networks** and how to create software applications over them in order to find solutions to the current challenges that biomedicine has in the present.

The course will be **very practical** with all the sessions in the laboratories and most of them with **programming** exercises to be implemented in order to learn the concepts presented in the course, and also, to learn programming.

The human genome has 3000 millions of elements in its sequence. There are 7500 millions of persons in the Earth. How to manage this huge volume of data? Computers networks.

Course Contents

Introduction to the tools

Object Oriented Programming

Network Service Models (client/server)

Communication Protocols Programming (TCP/IP, HTTP)

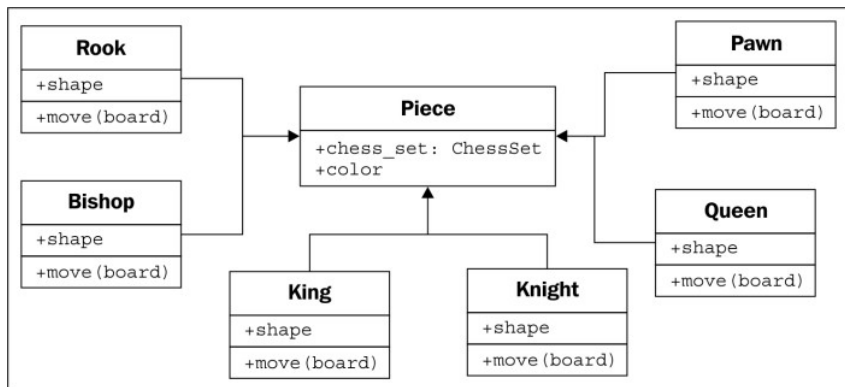Web Applications Programming
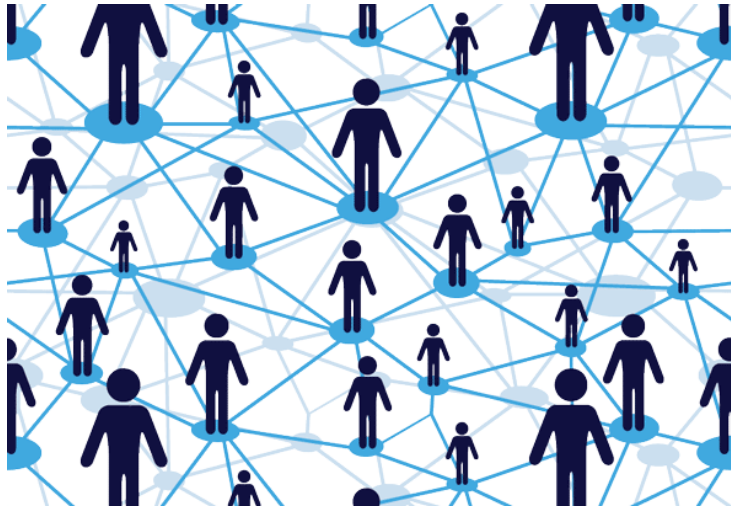
Block 0. Tools

Block 1. Object Oriented Programming

- Classes

- Inheritance

- Objects and Methods
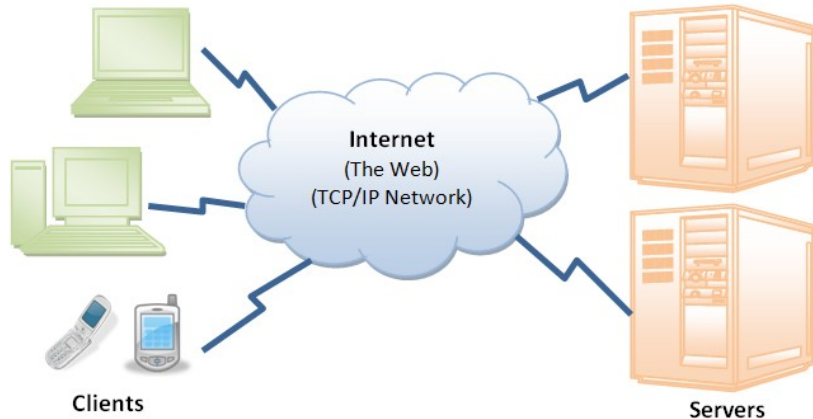
Block 2. Network Services Models

Network Services Models Introduction

Peer to Peer Model (P2P)

REST Model

Cloud Computing for network services deployment

Block 3. Communications Protocols Programming

Internet
(The Web)
(TCP/IP Network)
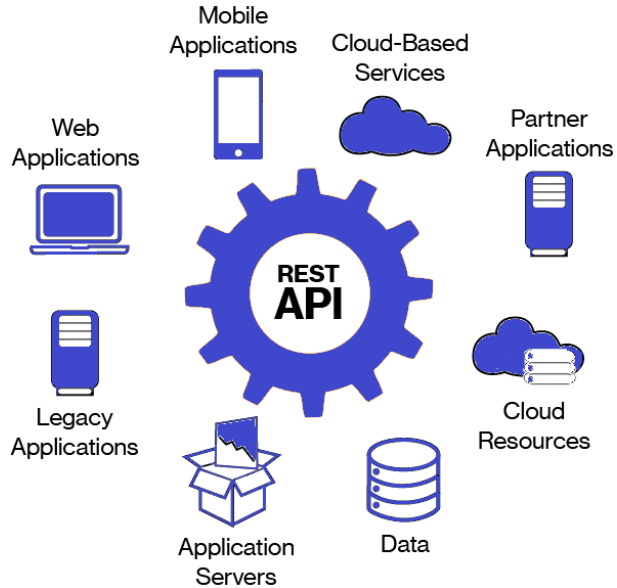
Clients

Servers

Protocolo TCP/IP Protocol

Protocolo HTTP Protocol

Security in Computer Networks

Distributed Applications Programming Techniques

Block 4. Web Applications Programming

Mobile Applications

Cloud-Based Services

Web Applications

Partner Applications

REST API

Legacy Applications

Cloud Resources

Application Servers

Data

Basic Elements

API REST Description

API REST Design

API REST Use

Basic information

Schedule:

Tuesdays: 15:00 a 17:00 (theory + practice) 106 Aulario I
Wednesday: 17:00 to 19:00 (practice) 106 Aulario I

Ask for an appointment by email to the teachers of the course for personal support.

Practices

The description of the practices will be available both in "Aula Virtual" and in github: **https://github.com/myTeachingURJC/2018-19-PNE/wiki**

All the practices will be done using the **Python** programming language.

Evaluation

The evaluation will be based in the practices, and especially, in the final project.

Each student will upload the practices to his/her github account following the instructions provided