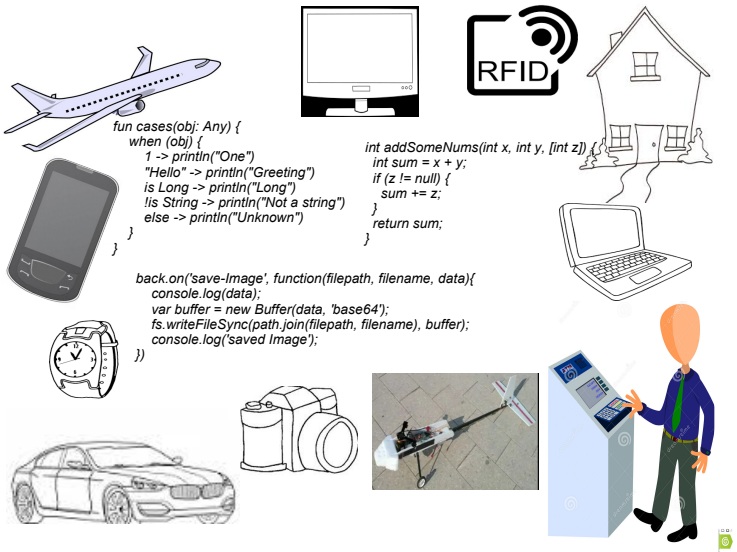
INF 3176: Advanced programming techniques

Introduction



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University of Yaounde I, Department of Computer Science

23 mars 2022

Dr. Azanzi Jiomekong

- Teacher and researcher at University of Yaounde I

- Teaching at University of Yaounde I :
  - Algorithmic and data structures
  - Object Oriented Modeling and Object Oriented Programming
  - Advanced Programming Techniques
  - Development of Mobile Applications
  - Semantic Web and applications

- Teaching Université Virtuelle du Sénégal :
  - Knowledge Engineering

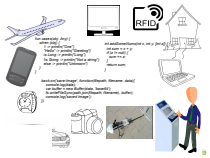
- Teaching at Université Nazi Boni :
  - Web of Data

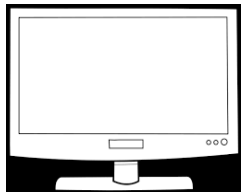
Dr. Azanzi Jiomekong

- Research objective : Semantic-aware software engineering

- Research topics
  - Empirical Software Engineering
  - Semantic Web Technologies
  - Knowledge Engineering
  - Knowledge Graph

- Research projects :
  - **TSOTSA :** A system for Nutrient Prediction and Food Recommendation using Graph Machine Learning techniques
  - **Mendi :** A system for traffic urban trafic description using Graph Machine Learning Techniques
  - **HISFactory :** A system based on MDE and KG for the generation of Health Information Software

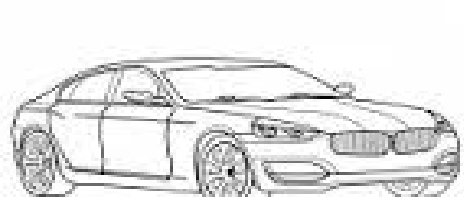


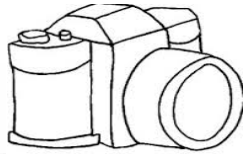


```
fun cases(obj: Any) {
    when (obj) {
        1 -> println("One")
        "Hello" -> println("Greeting")
        is Long -> println("Long")
        !is String -> println("Not a string")
        else -> println("Unknown")
    }
}
```

```
int addSomeNums(int x, int y, [int z]) {
  int sum = x + y;
  if (z != null) {
    sum += z;
  }
  return sum;
}
```

```
back.on('save-Image', function(filepath, filename, data){
    console.log(data);
    var buffer = new Buffer(data, 'base64');
    fs.writeFileSync(path.join(filepath, filename), buffer);
    console.log('saved Image');
})
```





Course objectives

- This course aims to provide students methodologies, methods and tools to develop software solutions at small and large scale

- At its end, students should be able to :
  - Know different types of software
  - Choose software development approaches, methods methodologies and tools
  - Choose software development life cycle according to the software to develop
  - Choose amongst different types of software architectures, the one which corresponds to their needs

Prerequisite : students must have good knowledge in at least one programming language

Level and duration

- Bachelor - L 3
- Duration = ?h :
  - Course ?h
  - Practice : ?h
- Personal student work : 200h

Content

- Introduction
- Software licenses
- Software engineering
- Agile processes
- Model Driven Engineering
- Software architectures (Monolithic, SOA and Micro-service)
- DevOps

Exam

- Continuous Assessment and practice :
  - Continuous Assessment (20%) : written exam
  - Practice (30%) : Gave to student at the beginning of the class
- Final exam (50%) : written exam

Job

- Work in a large company as a mobile application developer :
  - Local company
  - Company Abroad
- Start a company
- Work in FreeLance
- Teach
- Research

Job

Job references

- Glassdor
- PayScale

Some opportunities

- CodeJam
- Google Summer of code
  - `https://summerofcode.withgoogle.com/`
- Facebook Online Hackathon Series :
  - `http://340hackathon.com/2020/02/10/facebook-online-hackathon-series-2020/`
- #BuildforSDG Challenge

References

- Software Engineering : A Practitioner's Approach, Eighth Edition by Roger Pressman and Bruce Maxim, 2015.
- Guidance on the use of agile practices in the development of medical device software by AAMI, 2012.
- Agile Project Management With Scrum by Ken Schwaber, 2004.
- MDA en action, Ingénierie logicielle guidée par les mod'eles par Xavier Blanc, 2005

References

- GeeksforGeeks, available at `https://www.geeksforgeeks.org/`
- Tutorialspoint available at `https://www.tutorialspoint.com/index.htm`
- w3schools available at `https://www.w3schools.com/`
- edureka available at `https://www.youtube.com/user/edurekaIN`
- freecodecamp available at `https://forum.freecodecamp.org/`

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