DevOps Case
PE Assignment

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**DE HOGESCHOOL
MET HET NETWERK**

Hogeschool PXL – Dep. PXL-IT – Elfde-Liniestraat 26 – B-3500 Hasselt
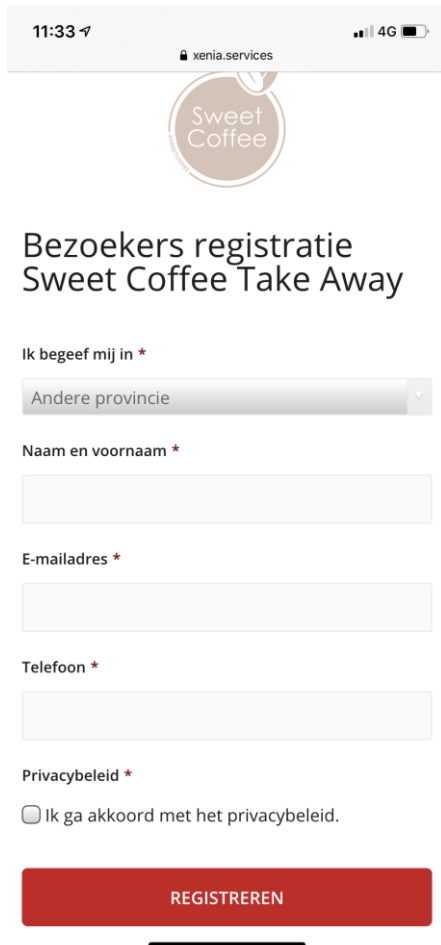www.pxl.be - www.pxl.be/facebook

Goals

- Build a simple product
  - First iteration from scratch, then:
  - Apply Design Patterns
  - Apply SOLID Principles
- Learn about DevOps tooling from a Dev point of view:
  - Automate everything
  - Create CI/CD pipelines
  - Unit Test and Coverage Reports
  - Measure your app
  - Remove friction between devs (and ops)
  - Exercise best practices

The project

- Build a registration form for restaurant visitors
- Rules apply (see [link](#))
- Technology? Choose below:
- Programming language back-end:
  – C#/Java/Node.JS/Python
- Front-end: HTML/CSS with
  – ASP.NET MVC
  – Pure JavaScript
  – React, Vue, …

Example

- User scans QR-code
- Lands on form
- Admin must provide this data to government
- Everything past 14 days must be deleted

The tools

- Azure DevOps (formerly known as VSTS)
  - Free for teams up to 5 devs
  - Unlimited private repos
  - Agile (Scrum, Kanban) workflow tools
  - Pipelines
  - Any language, any platform

Learn about Azure DevOps

- Instructions on Blackboard

Create accounts

- Teams of (up to) 4
- Use your PXL Account
  - This is a Microsoft account
- Send a mail to: kris.hermans@pxl.be
  - Team members
  - Language/platform of choice
  - URL of your Azure DevOps Project

DevOps requirements

- Develop in an agile way
  - Build Unit Tests
    - At least for the back-end
    - Front-end is appreciated

- Create a build pipeline
  - Build the app
  - Run all unit tests
  - Create a coverage report

DevOps requirements

- Create a release pipeline and automate deployment (if possible)
  - Free Azure Credits (Azure Student)
  - (optional) : AWS
- Think about a release strategy
  - When is de product "ready"?
  - How will you put it in production?
  - How will you continue development while at the same time you are running in production?
  - …

How <u>NOT</u> to do it

- Week 1 – 7: procrastinate
- Week 8 – 10: build something rapidly
- Week 11: deploy
- Week 12: create a pipeline
- Week 13 - 14: fix bugs, stay up all night
  give presentation

BAD PRACTICE

How to do it right

- Week 1: learn about Azure DevOps and create a Hello World app

- Week 2 – 5: create build pipelines and automate test runs

- Week 6 – 11: implement some user stories and explore possibilities of Azure DevOps, refactor as you gain insights in SOLID and DP

- Week 12 - 13: present your findings

- GOAL IS NOT THE FINISHED APP!

Deliverables

- (online?) Group presentation (week 13 and/or 14)
  - Short demo of the app and your DevOps workflow
  - Evaluation of Azure Devops
    - Which features did you use?
    - What about the promise "any language / any platform"?
    - Pro/Cons?
    - How did this influence your dev activities?
  - Design Patterns
    - Every team member picks 1 "Classic" Design Pattern, describes it and implements it into the case
    - Current case is small → Think outside the box!
    - You HAVE to implement it yourself (NOT: I'm using MVC so I'm fine)
    - Python/JS users → you will need to study OO principles!
  - SOLID
    - How did you apply this to your project?
    - Every Team member discusses 1 principle
- Personal reflection
  - 1 page per person
- Upload in EPOS:
  - one (elaborate) presentation → needed for evaluation!!
  - one reflection per person in seperate document

Evaluation

- First examination → Case → 30%

- Second examination
  - You will have to answer questions about DevOps, tools used in the context of your project.
    - What is Azure DevOps?
    - Describe its features?
    - How did you use Azure DevOps?
    - Describe your build pipeline
    - …