DevOps: Continuous Integration & Deployment

CA 2

Continuous Integration

Due: Monday 7th November @ 11pm

35%

Overview

Source code for a simple Calculate Weight in Planets calculator implemented in ASP.Net Core Web Application can be seen here:

The Calculator page: Allows user to enter their weight in either KG or LBS and displays to them their weight on different planets. Your mass is the same no matter what planet you are on, but your weight changes because gravity is different. If you know your weight on Earth, it's easy to calculate your weight on another planet using that planet's surface gravity.

Weight on Other Planet = Weight on Earth * Multiple of Earth's Gravity

Planet	Surface Gravity
Sun	27.01
Mercury	0.38
Venus	.091
Earth	1.0
The Moon	0.166
Mars	0.38
Jupiter	2.34
Saturn	1.06
Uranus	0.92
Neptune	1.19
Pluto	0.06

1. Fork the application into your own Azure DevOps repository
2. Write some unit tests using a unit testing framework of your choice. Aim for code coverage of at least 80%.
3. Write some BDD type tests using Cucumber/Specflow+ – 2 to 3 tests will suffice
4. Design and develop a CI pipeline using Azure DevOps which:
   a. Builds the project continuously
      i. As part of the build run the unit tests and acceptance tests
      ii. Runs the code through some code analysis – and does not proceed unless certain quality criteria are met
5. Fix any code quality issues/bugs found.
6. Add one new feature (with a unit test and possibly an acceptance test) and commit to the pipeline, fix any bugs. The new feature should be max 30 lines of code.

Deliverables:

1. Screencast demo of code running and pipeline, or whatever has been achieved
2. Invite Karen.Nolan@TUDublin.ie to the Project.
3. Upload a report describing the:
   a. CI pipeline (including tests etc.)
   b. The new feature (e.g. a user story)