Sydney Testers Meetup
Tues 1 March, 2022

TAFHub

Combinatorial Test Data Management

Stephanie Russell

Senior Consultant at TestPro Pty Ltd

What is Combinatorial Testing?

- Combinatorial testing uses a data driven approach
- Identify the number of dimensions in the structure of the data
- Prepare test data that represents every possible value of significance in each dimension
- Generate and filter the resultant data set to drive the tests

How large can the data set be?

- Imagine the significant test data dimensions of an insurance application
  - State e.g. 7 values
  - Suburb e.g. within NSW 128 LGAs
  - AgeNB e.g. in ranges 16-17, 18-25, 25-30, 30-40 etc.
  - Product e.g. Life, Property, MV, Renters
  - Insured Amt e.g. in ranges 0-2k, 2-5k, 5-10k, 10-50k
- # Combinations can be large:
  7 x 128 x 8 x 4 x 6 = 172,032 rows to prepare

Test Data Preparation

- The idea of 100% combinatorial test data coverage would be to run 172,032 tests
- 1) You could prepare all the driving test data ahead of time in a huge spreadsheet. There are some tools that help you do this
- 2) You prepare test data for each dimension and then generate the driving rows at test time
  - Control any value filtering to match each test run. Eg. A car insurance application test can filter on only rows with Product='MV', State='VIC' and AgeNB in Range-3, because this is where recent rules changed

TAFHub

- TAF stands for the **TestPro Automation Framework**. We use this tool internally in customer projects
- TAFHub is 100% ***Free*** to download and use
- TAFHub supports .NET tests via a NuGet package:
  - https://www.nuget.org/packages/TAFHub
- Or a package (zip) for PowerShell:
  - https://www.testpro.com.au/tafhub

Other Features

- Create a TAFHub from a JSON file
- Create an empty TAFHub
- Sending results to a CSV file
- Exporting a DataGroup as CSV file
- Remember and reuse previous tests result data, such as generated order numbers from test1, then use the order numbers in test2

Demo

- C# Tests in Visual Studio Pro
  - These are the kinds of tests that are written for Microsoft DevOps
- Power Shell Tests
  - The DLLs are loaded into PowerShell Reflection. This is the .NET class interface for PowerShell
  - The PowerShell Reflection is syntax is slightly different but it works the same
- TAFHubAnalyser
  - May need to clear the .exe with your anti-virus

Notes for PowerShell

- Run PowerShell as “Administrator”
- All .dll and .ps1 files from the distribution zip need to be “unlocked” before use
- Use “Set-ExecutionPolicy Unrestricted” to allow scripts to run without security warnings

Thank you

- TestPro Pty Ltd
  - www.testpro.com.au
  - srussell@testpro.com.au
- Stephanie Russell
  - www.linkedin.com/in/stephanieannerussell

TAF PRO

TESTPRO AUTOMATION FRAMEWORK