Project 1 Part 2 Report

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CSE 565

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Preface

The purpose of this project was to research a tool that automatically generated test cases based on the Design of Experiments strategy.

The test cases to be generated were based on given sample data of phone specifications.

This report outlines the tool used to generate the test cases, as well as the test cases generated.

Tool Used

There were multiple tools available that offered to generate test cases based on the Design of Experiments strategy. Some of the tools discovered from manufacturers are as follows:

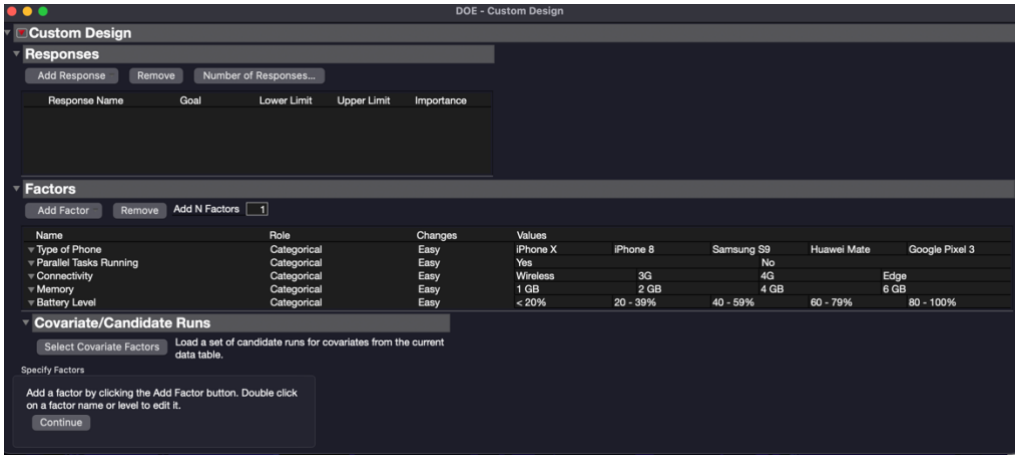
- JMP Design of Experiments
- StatEase Design Expert
- statgraphics10 Design of Experiments
- QIMacros Design of Experiments Software for Excel
- SARTORIUS MODDE

Ultimately, I decided on using the JMP Design of Experiments tools because it offered pairwise combination testing, was well documented, and had many online tutorials available.

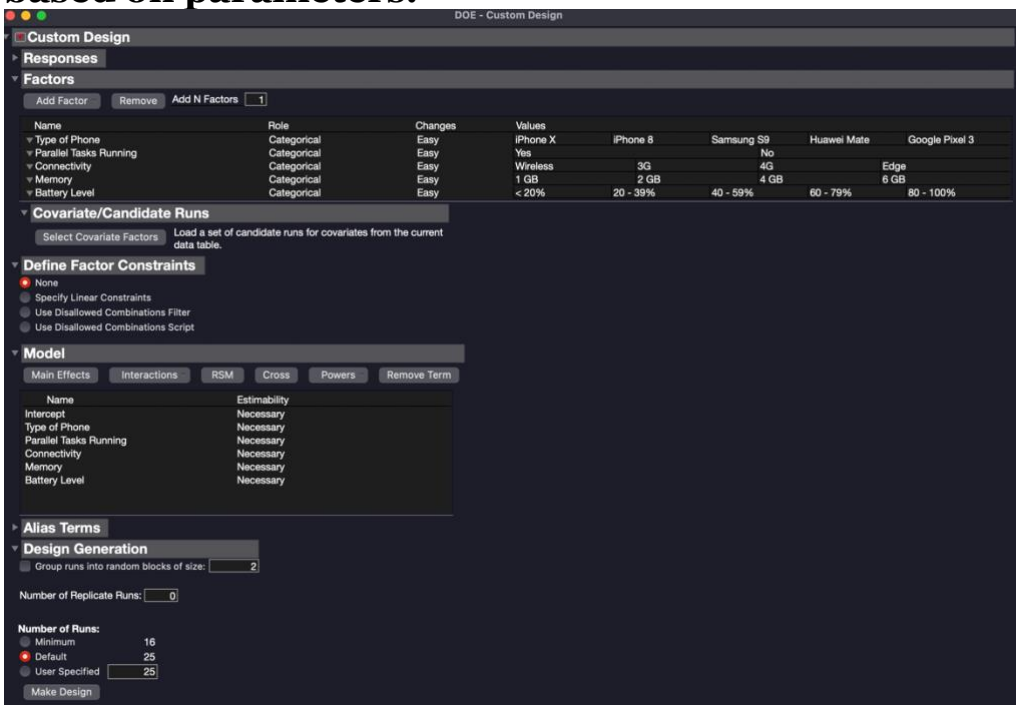
Tests Design

JMP's DOE design was simple and allowed for in-depth customization of test parameters. 5 Factors were set with each containing applicable values. The inputs and design of the test are shown below:

Test design demonstrating all inputs and their possible values



JMP giving a preview of what test cases it will generate based on parameters.



Test Results

The software generated a table of results that I was able to export into an xml file. The xml file is included in the folder of this project. A picture of the test results is also included below. In total, the software generated 25 test cases.

Test #	Type of Phone	Parallel Tasks Running	Connectivity	Memory	Battery Level
1	Google Pixel 3	No	3G	2 GB	40 - 59%
2	iPhone 8	No	3G	4 GB	60 - 79%
3	Google Pixel 3	Yes	Edge	1 GB	60 - 79%
4	Google Pixel 3	Yes	3G	6 GB	80 - 100%
5	Google Pixel 3	No	Wireless	4 GB	< 20%
6	Huawei Mate	Yes	3G	1 GB	20 - 39%
7	Samsung S9	No	3G	4 GB	20 - 39%
8	iPhone 8	Yes	3G	1 GB	< 20%
9	iPhone 8	No	Edge	1 GB	80 - 100%
10	iPhone 8	Yes	Wireless	2 GB	20 - 39%
11	Samsung S9	No	Wireless	1 GB	80 - 100%
12	iPhone X	No	Edge	2 GB	< 20%
13	Google Pixel 3	No	4G	1 GB	20 - 39%
14	Huawei Mate	Yes	Edge	4 GB	40 - 59%
15	iPhone X	No	Edge	6 GB	20 - 39%
16	Huawei Mate	No	3G	2 GB	80 - 100%
17	iPhone X	Yes	Wireless	1 GB	40 - 59%
18	iPhone X	No	3G	1 GB	60 - 79%
19	Samsung S9	Yes	3G	6 GB	< 20%
20	Samsung S9	Yes	4G	2 GB	60 - 79%
21	Huawei Mate	No	Wireless	6 GB	60 - 79%
22	Huawei Mate	No	4G	1 GB	< 20%
23	iPhone X	Yes	4G	4 GB	80 - 100%
24	iPhone 8	No	4G	6 GB	40 - 59%
25	Samsung S9	No	Edge	1 GB	40 - 59%