



University
of Glasgow | School of
Computing Science

Package Recommendation Engine

Keir Alexander Smith

School of Computing Science
Sir Alwyn Williams Building
University of Glasgow
G12 8QQ

Level 4 Project — March 19, 2015

Abstract

This paper explores the use of a recommendation system for operating system packages based on what other users with similar interests have installed.

Contents

1	Introduction	1
1.1	Background Research	1
1.2	Design	1
2	Implementation	2
2.1	DNF Plugin	2
2.2	Neo4j Database	2
3	Evaluation	3
4	Conclusion	4
	Appendices	5
A	Running the Programs	6
B	Generating Random Graphs	7

Chapter 1

Introduction

This is a project about things.

1.1 Background Research

1.2 Design

Chapter 2

Implementation

2.1 DNF Plugin

2.2 Neo4j Database

Chapter 3

Evaluation

Chapter 4

Conclusion

Appendices

Appendix A

Running the Programs

An example of running from the command line is as follows:

```
> java MaxClique BBMC1 brock200_1.clq 14400
```

This will apply *BBMC* with *style* = 1 to the first brock200 DIMACS instance allowing 14400 seconds of cpu time.

Appendix B

Generating Random Graphs

We generate Erdős-Rényi random graphs $G(n, p)$ where n is the number of vertices and each edge is included in the graph with probability p independent from every other edge. It produces a random graph in DIMACS format with vertices numbered 1 to n inclusive. It can be run from the command line as follows to produce a clq file

```
> java RandomGraph 100 0.9 > 100-90-00.clq
```