# Assignment 1

## Decision Analytics

### R00195231

## Task 1

### A )

Objects – students

Predicates –

university\_names = ["London", "Cambridge", "Oxford", "Edinburgh"]  
nationalities = ["Australia", "USA", "Canada", "South Africa"]  
courses = ["History", "Medicine", "Law", "Architecture"]  
students\_gender = ["boy", "girl"]

Attributes – ["boy", "girl"] ["History", "Medicine", "Law", "Architecture"] ["Australia", "USA", "Canada", "South Africa"] ["London", "Cambridge", "Oxford", "Edinburgh"]

### B)

Sentence 1-

One of them is going to London (1).

* **model.AddBoolAnd([student\_university\_name[students[i]]["London"]])**

Sentence 2-

Exactly one boy and one girl chose a university in a city with the same initial of their names (2).

Sentence 3-

A boy is from Australia, the other studies History (3).

* **model.AddBoolAnd([student\_nationality[students[i]]["Australia"],  
   student\_course[students[i]]["History"].Not()]).OnlyEnforceIf(  
   student\_student\_gender[students[i]]["boy"])**

Sentence 4-

A girl goes to Cambridge, the other studies Medicine (4).

* **model.AddBoolAnd([student\_university\_name[students[i]]["Cambridge"],  
   student\_course[students[i]]["Medicine"].Not()]).OnlyEnforceIf(  
   student\_student\_gender[students[i]]["girl"])**

Sentence 5-

Oliver studies Law or is from USA; He is not from South Africa (5).

* **model.AddBoolOr([student\_nationality["Oliver"]["USA"],  
   student\_course["Oliver"]["Law"]]).OnlyEnforceIf(  
   student\_nationality["Oliver"]["South Africa"].Not())**

Sentence 6-

The student from Canada is a historian or will go to Oxford (6).

* **model.AddBoolOr([student\_university\_name[students[i]]["Oxford"],  
   student\_course[students[i]]["History"]]).OnlyEnforceIf(  
   student\_nationality[students[i]]["Canada"])**

Sentence 7-

The student from South Africa is going to Edinburgh or will study Law (7).

* **model.AddBoolOr([student\_university\_name[students[i]]["Edinburgh"],  
   student\_course[students[i]]["Law"]]).OnlyEnforceIf(  
   student\_nationality[students[i]]["South Africa"])**