Department of Computer Science

CSI481 2023/24

Assignment Part 1 – Conceptual Modeling Using UML

[Due Friday 25 August 2023 by 17:00]

1. **Introduction**

The purpose of the exercise is to design and build a relational database together with some application programs that interact with the database. It hopefully will complement the lectures by providing practical experience.

You have learnt that database development involves several phases including:
1. Database Planning
2. Conceptual database design
3. Mapping the design onto a specified DBMS.
4. Implementation including application programs
5. Testing and evaluation.

2. **Your task**

In groups of 4-5 students per group, perform a conceptual analysis of the scenario described in point 3 below using UML and a CASE tool such as Visual Paradigm, UML Graph (www.umlgraph.org), Visio or yED. *Detailed documentation on how to draw UML diagrams using UMLGraph available at http://www.umlgraph.org/doc/index.html.* You should include participation constraints and cardinality constraints in addition to entities and attributes. Note any unspecified *requirements* and make appropriate assumptions to make the specification complete. You might want to approach the task by think of the data the insurance company has to hold to function properly.

Your report should include a *conceptual schema, unspecified requirements* and assumptions, if any, and should be submitted in Moodle as a pdf (Adobe) document **concept.pdf. Each report should contain a cover page and details of how each member participated in the assignment, in addition to the items above.**

3. **Scenario**

An insurance company in Botswana sells policies to the citizens. A policy-holder may have a number of policies with the insurance company. Each policy is given a policy number and relates to a single policy-holder. The company has a range of insurance products and may put together a range of

products to form a policy. Examples of motor products are: third party, fire, theft, accident damage, windscreen cover etc. Brokers sell policies for commission and any one policy may have commission payable to more than one broker. Claims are made against policies. A claim relates to only one policy and each claim is classified according to one of six claim types. The company's products are grouped by business area, ie., life, motor, marine etc. Any particular product belongs to only one business area. The company holds information on clubs and associations, for promotions and selective mailings. A holder may belong to a number of different associations. In order to limit risk the company may place all or part of a policy with re-insurers. All or part of a single policy may be placed with a number of different re-insurers.