Department of Information and Communication Technology

Faculty of Technology

UCT31021 – Practical for Artificial Intelligence

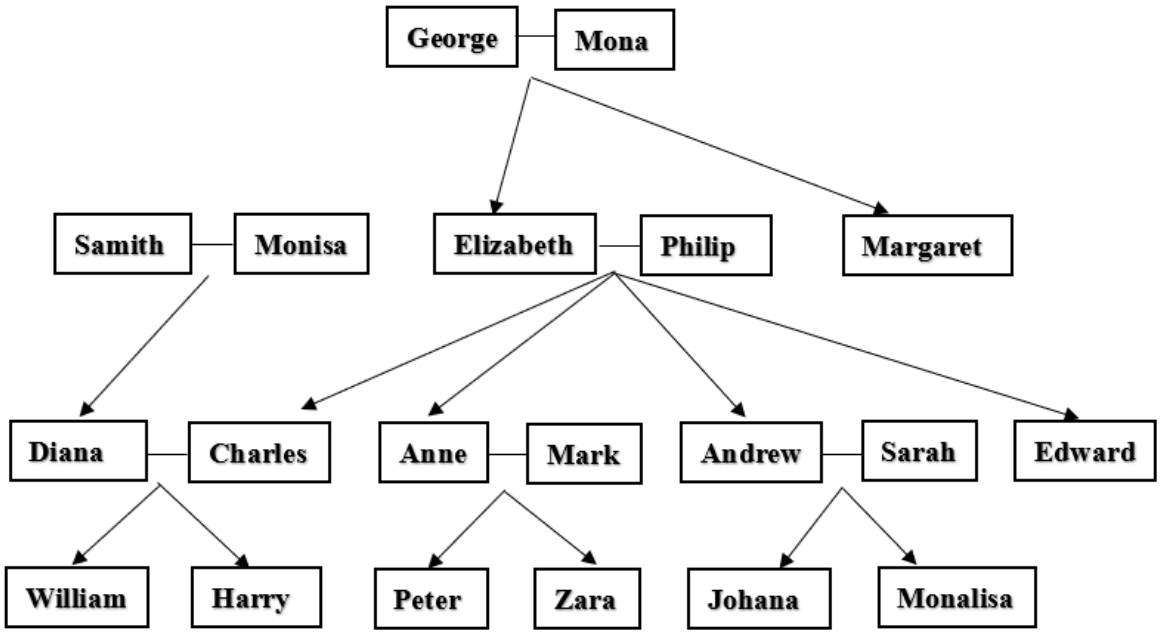
In-course Assessment -I

Date: 01.08.2024 **Time Allowed: 03 hours**

Instructions:

- Create a folder on the desktop with your Registration Number (e.g. SEU/IS/19/ICT/XXX) and save your answer scripts inside the Folder.
- Write a separate Prolog(.pl) for each of the main Questions.
- Save screenshots of the each of the infer/queries and their corresponding answer within the same folder.

01. Create a SWI Prolog Program to represent the family tree shown in the following diagram.



Lines connect spouses and arrows point to children.

a. Enter the information from this family tree as a set of Prolog facts. Note that the females are Mona, Monisa, Elizebeth, Margaret, Diana, Anne, Sarah, Zara, Johana and Monalisa.

b. Add Prolog rules that will allow you to infer information for the predicate's grandchild, great Grandparent, brother, sister, daughter, son, aunt, uncle, brother-in-law, sister-in-law, and first Cousin. You may create rules for additional predicates if you find helpful.

c. Test your Prolog program by asking it who are Elizabeth's grandchildren, Diana's brother-in-law, and Zara's great-grandparents. Note, in some cases, it may be impossible to avoid getting the same answer more than once for a query.

d. Ask the following,

I. Father of Harry?
II. first Cousin of William?
III. Grandchild of George?
IV. Brother of Andrew?
V. Sister of Elizabeth?

40 marks

02. Allow the user to enter the number to find the Factorial and Fibonacci numbers.

15 marks

03. Assume, the following are the employee details in the **"ABC"** Company in Sri Lanka.

Emp ID	**Employee Name**	**Age**	**Designation**	**Salary**	**Weight (Kg)**	**Height (Cm)**
Emp 111	Peter	25	Accountant	50,000	75	162
Emp 112	Askar	37	Software Engineer	150,000	70	165
Emp 113	Amal	28	System Analyst	100,000	55	170
Emp 114	Kumar	40	Network Engineer	160,000	60	152
Emp 115	Divya	37	HRM	80,000	45	148
Emp 116	Selvanayagi	35	IT Technician	75,000	40	150
Emp 117	Malar	23	Web Developer	85,000	35	158
Emp 118	Suresh	25	Data Scientist	95,000	78	180
Emp 119	Fathima	23	IT Director	70,000	42	155
Emp 120	Kavya	45	QA Tester	85,000	50	160

1. Create a knowledge base to store Employee details.

2. Is Pranav an employee in "ABC" Company?

3. How many employees are worked in the company?

4. Who are the employees in the company?

5. Calculate the average of the above salary.

6. Who get the promotion, If the employee's salary is greater than or equal to 80,000, then "Get the Promotion".
    - Else salary is less than 80,000 then "Can't get the promotion.

7. Write a rule that allows users to get all employee's names for a specific designation.
   e.g.: Peter is an Accountant.

8. What is the employee no and salary of Kumar?

9. Write a rule to find the BMI for all employees.

10. ABC Company arranges the blood donation camp, if the Age is greater than or equal to 18 and the weight is greater than or equal to 50kg, then he/she "Donate the Blood". else Can't donate the blood.

45 marks