Expert System for G.C.E (A/L) Students

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Introduction

This poster presents the design and development of a proposed expert system that guides the students for their undergraduate courses after the completion of their G.C.E (A/L) studies according to their preference and Z-score. Also this system guides the students to choose their G.C.E (A/L) subject combination according to their career choice. The proposed system takes the necessary details from the user as input and provides with possible courses as output. The knowledge-base of the system contains the details about universities in Sri Lanka and courses available in those universities. This information is acquired from web pages and UGC book. The basic idea of this approach is designing a model to get the information and preference from the user such as G.C.E (A/L) examination results, general exam marks in G.C.E (A/L) examination, subject combination in G.C.E (A/L), university preference, career choice etc., and to pass the information to a knowledge-based expert system to determine the courses and universities to suit best according to their inputs.

Motivation

A proper undergraduate course selection is an important decision in the life of G.C.E (A/L) students in Sri Lanka. Every year thousands of G.C.E (A/L) students in Sri Lanka face the challenge of choosing their most suitable university course. It is a difficult task for a student as it involves many factors to be considered, namely student's career choice, results in G.C.E (A/L), subject combination in G.C.E (A/L), G.C.E (O/L) qualification, aptitude tests for particular courses, distance between the university and home *etc*. Many students seek advice from teachers, parents, senior students, friends or others who have knowledge about the universities and courses. Unfortunately, it is not guaranteed they consider all the relevant factors to guide the students. With today's change of stream in G.C.E (A/L) and courses, the details provided by a human expert may not be fully sufficient to judge whether a university/course will suit for a particular student. Not all are up to date with information for all possible choices that can be made. A carefully built expert system (ES) with relevant knowledge-base and sound inference engine would give a right choice quickly.

Project Goal

- Our aim is to develop a system, which will guide students to choose
- suitable university and courses according to their preferences.

- This system will reduce the student time and money which they give
- to human experts or career counselors.

Methodology

Expert system supports students for the activities after completion of G.C.E A/L examination. It supports students in choosing their suitable course and university with the help of rules and facts contained in the knowledge base and inference engine procedures. It also gives a proposed solution by guide them as an expert. For that knowledge gathered from authorised webpages such as UGC (University Grant Commision) , university webpages *etc*. and from human experts.

The knowledge base is developed as a rule-based system using:
    University admission requirements rules &
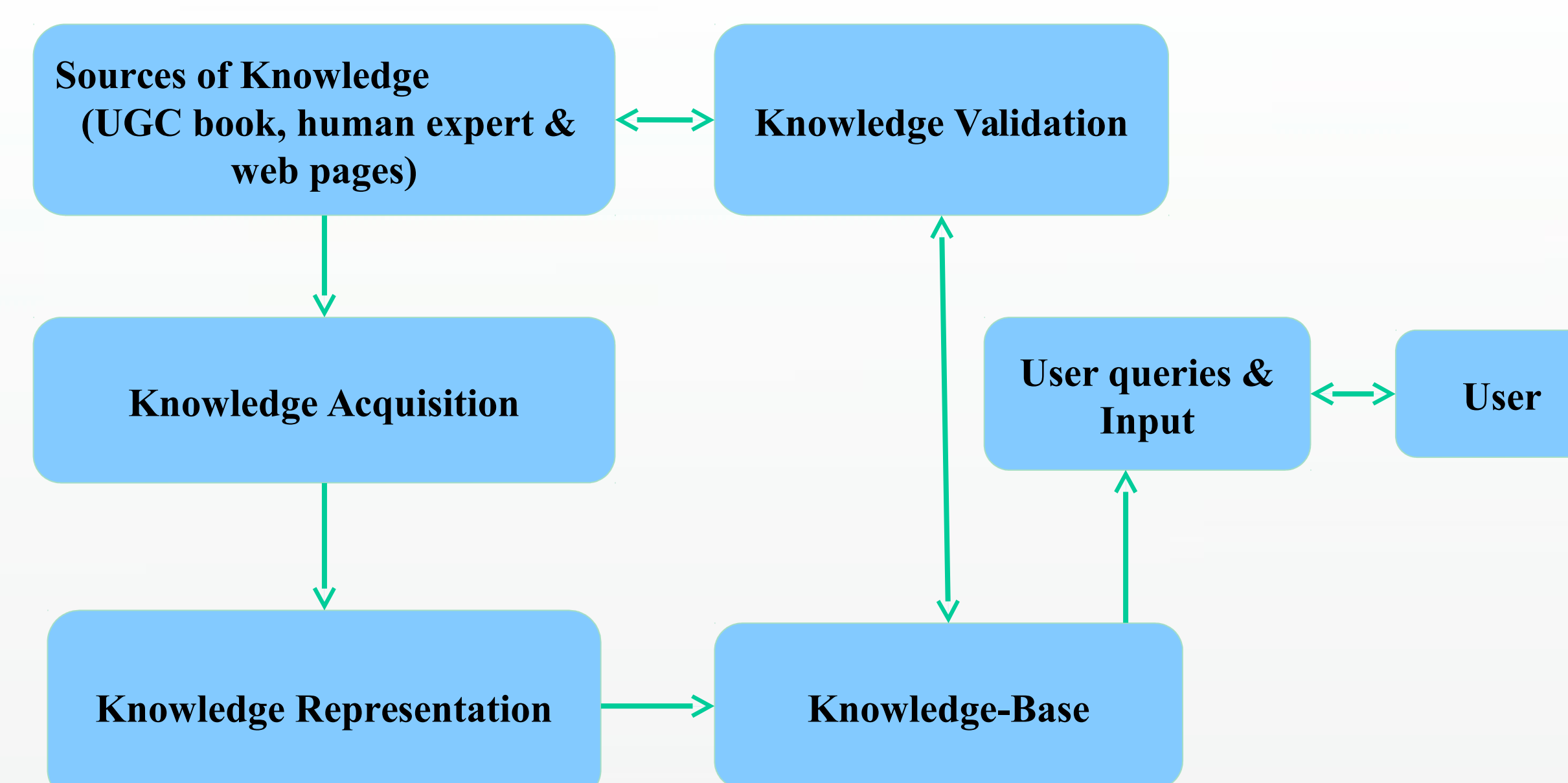   Students' needs/preferences.

Flow Diagram of The Expert System
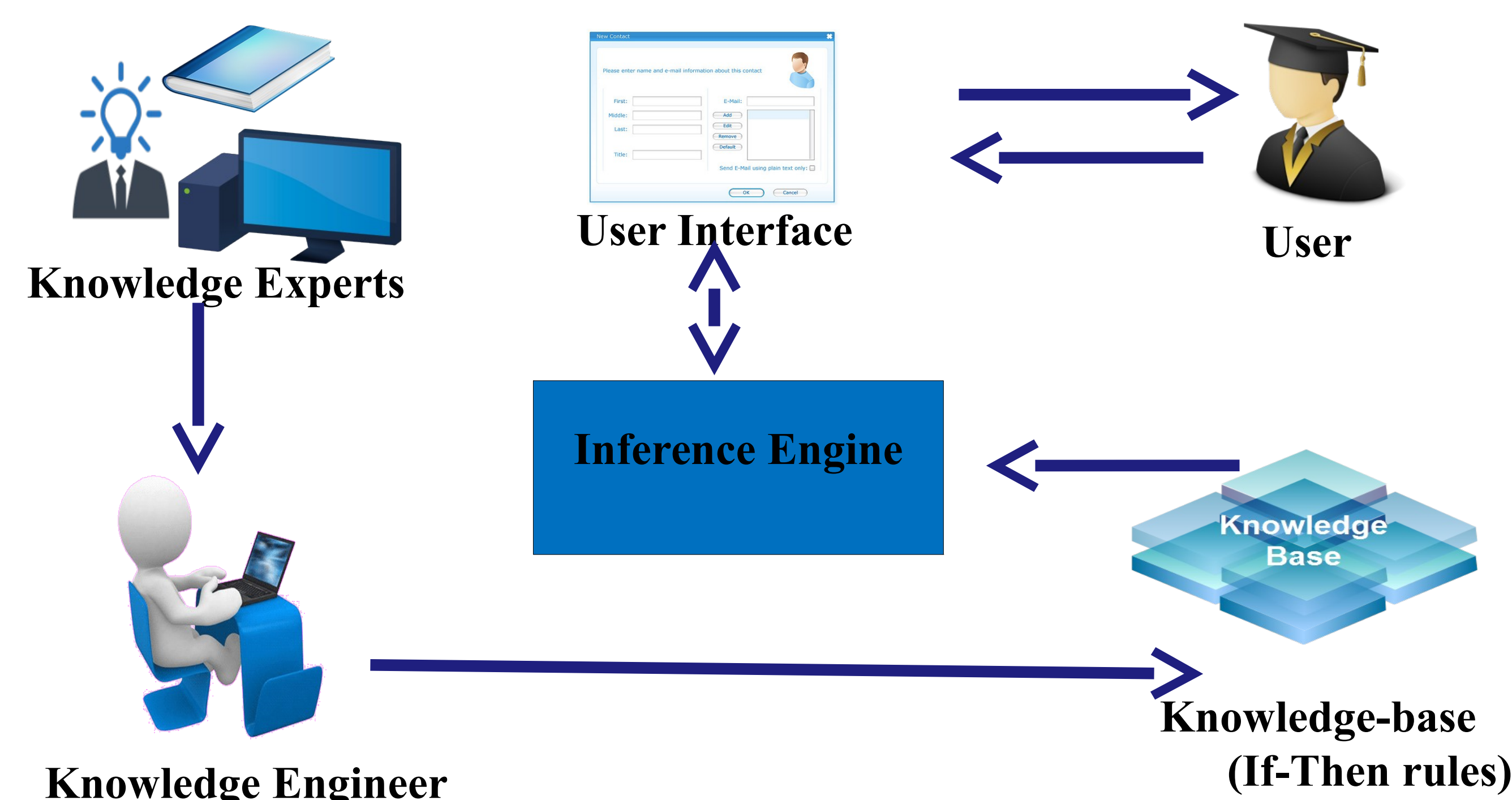
Implementation

Implementation Steps
- Knowledge acquisition.
- Knowledge representation.
- Developing a rule-based.
- Obtaining details from the user through a user interface.
- Providing suggestions to user.

Knowledge-base

Our main sources for knowledge acquisition are UGC guide book, human academic experts and a few carefully selected websites. We convert all the criteria, career choice, university preference and other qualification into facts and rules and store them in the knowledge base. We captured all general important background information about the student. The rule are represented in the form of IF <precedent> THEN <antecedent> rule. That is to say when <precedent> occurs <antecedent> follows.

Conclusion and Future work

This project presents the design and development of a proposed expert system to help the students select the most suitable university or course based on their preferences. This expert system is a rule based system, and used prolog, a declarative language to store knowledge base and develop the system. This expert system be extended as online web-based expert system so that anyone on the Internet can use to get advice on the university/ course selection. The idea can be utilised to build a system as an expert advisor to any school leavers, for example.

Outcomes

Published a research paper under the title *"Expert System for Guiding G.C.E A/L Students in Selecting Suitable University and Course After Completing G.C.E A/L"* on 33rd National IT Conference (NITC) – 2015 which was held in Sri Lanka on September 7, 8 & 9 2015 conducted by Computer Society of Sri Lanka (CSSL). (ISSN 2279-3895, Page 21-24)

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