Decision Making for Student Management: Automation of Inscription for Faculty

By Latifa. Oubedda

Abstract - Using data available at the faculty to appreciate closely the contribution of the implementation of a decision tool in a university environment. In fact, this is a business intelligence application to test the equilibrium relationship between activities and aggregations for each category of actors. Thus, we propose an application module: holder on the other hand the creation of an information system dedicated to actor decision student of the Faculty. Taking as an example to study the measure of success by industry, mention of the tray and university year. The choice of this indicator is motivated by the needs and projected orientation of the new registrants. At registration online, the student, depending on its tray and the grade obtained, the system assigns it to one or more dies and offers him a choice to opt for.

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I. INTRODUCTION

Business intelligence is one of the areas of computer that is experiencing a development exemplary today. Indeed, business managers, faced with increasingly unstable environments, are expected to take the most effective decisions based on reliable data. The current problem is not to have better decision-making tool, but to structure upstream data that will feed not to be ineffective. Thus, the design of information systems tailored and scalable decision is a hot topic for all organizations around the world.

This system must be well thought able to:
- Reduce the inadequacies of the traditional manual system management and human resources.
- Establish a system of standardization and codification between all stakeholders in the application.
- Conduct a web-oriented application, which allows all those affected by the message to access it.
- Complete a secure application, using an authentication system for each department and each employee.
- Complete an application that meets the 3-tier architecture, namely the third on the client, the third on the Web server and the third on the server database.

II. HYPOTHESES

We begin by modeling [4] upstream actors, taking into account the specifications and expectations of each them, namely:
- The student desire to succeed her university
- So have a work placement.
- A good training qualifier.
- Etc......

We sipose upstream that student according to their type of bin and obtained statement and oriented chains or suposse he is more chanse of succeeding her university career.

III. MODELING THE ACTORS

Previously (in [1] [2]), we showed that applications for the actor level are based on information gathered from the databases (DB Apg, DB EN, DB AD, DB AC, DB AG, DB DOC). The design of a Decision Support Information System [3] requires a special approach to design and modeling complex [4]. We adopted a model to meet specific needs such as factor analysis [5] which has a policy to facilitate understanding and interpretation of a large set of multidimensional data. This analysis shows graphically the similarities between the data and quantifies the degree of correlation between several factors.

The model we get includes all actors involved in the university system. It is follows:

\[ \text{Actor} = T_i \sum_{s=1}^{n_s} S_i + \sum_{j=1}^{m-3} C_j + \sum_{k=1}^{n_A} A_k \]  


After the consolidation of the formula 1, we obtain:
The portfolio of the source (S) defines all the activities to be performed during one cycle by each university player.

Category (C) defines the three actors of the university: Student, Teacher, and Administrator.

Aggregation (A) defines the needs of each player for a graduate level.

Beginning of the University Cycle:
- The portfolio administrative actors is the first actor at a time t:
  Administrative actor (PA) = \{Ci (1 \leq i \leq 3); Aj(1 \leq j \leq 6)\}
- The actor Teacher portfolio is the second player at time t+t:
  Actor Teacher PE) = \{Ci (3 \leq i \leq 8); Aj (6 \leq j \leq 11)\}
- The Student Portfolio actor is the No. 3 player at a time t+t+1: Actor Student (PT) = \{Si (8 \leq i \leq 13); Aj (11 \leq j \leq 16)\}

This model is then obtained:

End of University Cycle:
- The Student actor Portfolio is the second place at the end of the academic cycle:
  Student Actor (PT)= \{Si (31 \leq i \leq 35) ; Aj (42 \leq j \leq 44)\}
- The administrative actors portfolio is the last speaker at the end of the academic cycle:
  Administrator Actor (PA)= \{Si (35 \leq i \leq 37) ; Aj (39 \leq j \leq 42)\}

The following model is then obtained:

Table 1: Role, Activities, Aggregation of Actors

Model of application is to justify the balance between all the activities of all actors and their aggregations at the end of a graduate level.

In this context, we present, as an application of indicators defined by the makers of the university and programmed by technical information system making the institution in order to improve the performance of each actor.

To better understand this approach, we are using a graphic to show the equilibrium relationship between each actor and their activities at an undergraduate level [6] and its aggregation, taking into account the multiple observations to develop our model.

The rest of this section introduces the concepts of our model using the method of an ontology and decision-making, explains briefly the extraction phases multidimensional elements, the deduction of relations and standardization.
IV. Development Environment: The Inscription Module

a) When using the management of registrations

In this module there were also three players namely the head teacher, IT Department and the agent (student). The use cases included in this model are as in the figure.

![Diagram of case registration](image)

Figure 1: Diagram of case registration

The description of each use case provides:
- Announcement of needs: service announces new pedagogy defined resource requirements for each cycle start university
- Pre-registration: once the need in software and resources students can perform pre-registration.
- Analysis of pre-registration: education service offers a synthesis of pre-registration
- Last day for registration: the department determines the final list of candidates and sends it to the service of education.

b) Sequence diagrams

- We take the following scenario: "Analysis of preregistration."

![Sequence diagrams](image)

Figure 2: Collaboration diagram for the scenario "validation condition of access to courses"

After authentication of the agent (student), CIN code allows the decision-making system for student oriented towards courses or it is more likely to succeed are at university, where he confirms his registration.

c) Collaboration diagram

In this case, we look at the scenario: "Success Online Registration" pedagogically.
Then the Academic Supervisor, after validation of access conditions for each sector, is responsible for sending emails and letters of notification to the responsible department to start the online registration service.

V. Application

After explaining the improvement of our model we use an open source product to make our application around a decision tree. We operate our business model around an application that gives us the opportunity to synthesize what we say and the challenge of using open source software that offers innovative perspectives on the treatment of information content as it is based on patterns XMLA10 for the analysis of data. We apprehend this new analysis model for our application which is discussed a development language allowing the manipulation of databases by MDX11 requests for analysis.

Our application described in Figure 3 focuses on two components: data recovery external to internal. Data external recouvert offers precomputer analysez. Data recovery in the house allows dynamic analysis.

Data recovery for external files "log" of the platform defined sub-ontology "BAC" "Either" and "year-attainment". We recover data and also take advantage of a bibliometric analysis around an information System to provide a decision analysis in a band and remote interface. The first part allows Mondrian12 explain. Data recovery for our internal model (CA, C, GA) to calculate the end of each university cycle and allows identification of needs, functions and activities by type of actors in an information system dedicated to decision academia.

This second component an integral part of Openi. The external and internal data collected and analyzed by type of actor.

VI. Conclusions

Our medium term perspectives concerning the format of the databases used in our application. To summarize our application, only the "data analysis" is based on an analysis scheme in XMLA. For all projects in Openi, we had to import our data into a SQL database so that data were available in XML! That's why we have direct some of our research to enable an XMLA schema to make analyzes of data from databases in XML. University governance in the context of a strategic information system includes a data governance to support a business vocabulary essential to the coherence of the information system.

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