Resource Management System

-Documentation-

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Documentation content

Project vision

1) Introduction

Resource Management System is a software build for the staff of an academic institution that are concerned about teaching and most important researching in various domains. The aim of this software is to aid in managing resources (human resources, logistical resources and financial resources) and to decrease the grade of effort required to define various activities.

The software is web based meaning that it can be accessed from the web using any browser from any operating system, this is useful when researchers are gone on conferences or meetings and are required to add new activities to their projects. They can do that from a device (PC, Mac, tablet etc.) that has a stable Internet connection and one can also view his schedule using the same device. No installation and dependencies are required except a browser (all modern operating systems come with at least one installed browser) and an Internet connection.

2) Positioning

2.2) Problem statement

The director of an academic department manages human resources (hired on different academic or research or administrative positions, having/not having a PhD), financial resources and logistical ones (rooms, equipments, etc). The department is involved in several projects, some of them didactical (undergraduate and master academic programs), some other of a scientific kind (research grants, research cooperations), and some of administrative nature (scientific events, student research groups, admission/finalization exams, business events, etc).

The academic duty of teachers (disciplines, student classes, academic programs, number of hours) is established by a document called "State de functii", produced by using a dedicated software application. The academic schedule is produced each semester by another software system. Both documents are available in electronic form.

A research project has a team of members and several phases, and a phase involves several activities, executed in a specific order. An activity is performed by one or more team members, each with a planned number of hours. The budget of an activity is decomposed into the following expenses: workforce (wages), mobility (covering conference fees, travel, accomodation, and per diem), and logistics (acquisition of consumables and equipments).

An administrative event has a starting and ending date, a list of persons assigned to it and a calendar - list of activities. Each activity consists of several tasks; a task is performed by one or more persons, in a specified time frame (start date, end date), and needs zero/one/more logistic resources.

Our goal is to develop a resource management system (RMS), allowing department's director and members (teachers, research staff, administrative staff) to cooperate and interact for a better use of all department's resources.

The director of the department uses RMS for the definition of research projects and administrative events, approval of some activities and production of reports describing resource allocation and resource use for each department member, each project, each administrative event and each logistical resource.

Academic and research staff uses RMS for getting and recording info related to their activities/tasks, covering didactical, research, and administrative duties.

Administrative staff uses RMS for defining human, financial, and logistic resources of the department.

2.2 Product Position Statement

For	Academic people and Academic Institution Director.
Who	Are concerned about using resources in an optimal manner.
The Resource Management System	Is a software
That	Allows the management of human, logistical, financial resources for various types of activities (research, administrative etc.

3 Stakeholders

3.1 Stakeholder summary

Name	Description	Responsibilities
Administrative staff	Manages the institutions resources (human, logistical, financial).	• Recording human resources • Recording logistical resources • Recording financial resources
Department Director	Creates various activities and approves activity requests from members.	• Defines academic programs • Defines research projects • Defining student research groups • Producing resource usage reports • Approving department activities
Research staff, Teachers	Conduct research and/or didactic activities.	• Performs research activities • Performs didactic activities

3.2) User environment

The users are involved in different activities that may be individual or collective (more than one). For instance a didactic activity is usually performed by one teacher which for research project this is not the case. Research projects are formed of teams and each phases, each phase has a set of activities which can be performed by one or more research project team members.

The duration of a task or activity depends on it's nature, it can take a few hours or a few days or even weeks. Didactic activities usually take up to 2 hours while research projects take a few years.

Some activities are done inside the department institution (courses, seminars etc.) while other activities can take place in various other places (conferences, presentations etc.).

4) Product overview

4.1) Needs and Features

Need	Priority	Features	Planned release
Recording of department resources	1	• Recording of human resources (persons hired on several academic, research, or administrative positions, having/having not a PhD) • Recording of financial resources • Recording of logistical resources (rooms, equipments, etc)	10th April
Defining department activities	1	• Defining of academic programs (undergraduate and master level • Defining research projects (teams, phases, activities) • Defining administrative events (time frame, teams, activities, tasks) • Defining student research groups for specific academic programs • Sending requests for recording new research grants and administrative events (to the director) • Recording of performed research activities (subject to director's approval/confirmation)	24th April

Approving department activities	2	• Approving activities performed by department members • Approving requests for recording new research grants and administrative events	2nd May
Obtaining reports	3	• Producing reports describing resource allocation and resource use for each department member, each project, each administrative event and each logistical resource.	8th May
Accessing information	5	• Getting the calendar of staff activities/tasks (teaching, research, and administrative) • Getting info related to the department's resources • Getting info related to the scientific grants (without financial details and omitting some classified activities, if any) • Getting the calendar of didactical, scientific, and administrative activities (having some filtering features)	22nd May

Supporting Requirements Specification

1) System wide Functional Requirements

The product is a software web based application that requires a server as a host for the application and a browser to use it. In order to install the application an IIS (Internet Information Services) instance must be installed on the targeted server and a SQL Server instance must also be installed (can be on a remote server or the same with the one where the application is hosted).

2) System Qualities

2.1) Usability

The product is easy to use because it requires only a browser to run and has a friendly user interface. One without much knowledge in computer science can easily benefit from all features that this product offers.

2.2) Reliability

The product can be ran from multiple browser at the same time and perform different tasks. Each user runs on a different session on the server meaning that any user, without depending on how many users are using the application at the same time, cannot interfere with the work of another user. Each user is treated independently.

2.3) Performance

The product is very responsive and does not require any start time or shutdown time since the application is hosted on a server. When a user accesses the application through the browser (as a web site) the application is already loaded and waiting for users. Also, there is no shutdown time required. The amount of time the user has to wait is exactly the same as the amount of time the respective user needs to close his/her browser.

2.4) Supportability

Being a web application it is accessible from anywhere through the web (Internet) using a browser. Any user can benefit from all features that this product provides from any operating system that has a browser. No extra installations are required and no dependencies are used.

3) System Interfaces

3.1) User Interface

3.1.1) Look & Feel

The application uses a rich graphical user interface that is very friendly. All content that is displayed automatically resizes when the user resizes his browser. The content is made to fit the browser display area allowing the user to take advantage of any displays he has at hand. It may be a tablet, a PC or a TV. No matter on the size, the content will automatically resize and fit any given display area.

3.1.2) Layout and navigation

The product offers the user a simple, yet effective layout that features a header, a menu on the left side and a content area that takes advantage of most of the display area. The navigation is made simple through menus and sub-menus, this allows the user easily find and use a feature.

3.1.3) Consistency

The user interface is consistent. Some features take the user through a set of steps, each step allows the user to decide what will happen next and also present him the data he already gave allowing him to focus more on providing the correct information rather than focusing on remembering what he did three steps earlier.

4) System constraints

The application requires a server as a web host and a SQL Server instance. The web server should have at least a quad core CPU and at least 8 Giga Bytes of RAM and around 4 drivers in RAID-10 to cover I/O with external devices such as hard disks. Most web hosts can provide such hardware.

A DNS server is recommended to help users remember a domain (such as rms.myDomain.com) rather than a IP address (e.g.: 132.42.231.2). Domains are more user friendly and in case a few letters were forgotten, a simple search on the web can find the domain, however when dealing with IP addresses directly, online web search can't do much if one forgets a digit in the address.

Use Case Specifications

1) Check User Identity

Description: the user wants to authenticate in order to use some features.

Preconditions: none.

1.1) Main flow:

Utilizatorul selecteaza autentificare.
Sistemul afiseaza o noua pagina cu campuri pentru autentificare.
Utilizatorul introduce datele de autentificare.
Apoi actioneaza butonul Login.
Sistemul redirecteaza utilizatorul la panoul de control al categoriei din care face parte.
CU se termina.

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Scenarii alternative:

A1: La pasul 5 , daca sistemul afiseaza un mesaj de eroare cauzat de date de autentificare invalide se revine la pasul 2.

Postconditii:

Daca autentificarea a avut succes utilizatorul va primii acces la toate informatiile si functionalitatile disponibile categoriei de utilizatori din care face parte.