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DEVELOPMENT OF EDUCATIONAL PORTAL BASED ON MASH UP TECHNOLOGY FOR INTERNATIONAL STUDENTS

In the last few years a number of tools have become available that support the creation of web applications by mixing and matching data sources and processing. This article discusses issues associated with the use of technology Mash up in creating an educational portal for international students. The features of Web development Mash up at three levels: data, business logic and presentation. There are discusses the structure of the portal and especially the interaction with the programming interfaces of Internet resources and Web services. Educational portal, built on technology Mash up solves problem of search, processing and presentation of relevant information in a convenient form, it allows searching for higher education institutions, to view information about them, and also to compare universities with each other on the basis of criteria defined by the user.

Key words: Mash up, educational portal, web 2.0, resources, services.

Introduction

The technology that simplifies creation, delivery and execution of enterprise applications is gaining momentum by the day, as the client-tier becomes a fully-fledged layer with increased processing power and continues in its journey to evolve as an application platform than presentation layer.

A Mash up application has three components: the information provider(s), the Mash up site, and the client's Web browser. These components are logically and physically disjoint and are likely separated by both network and organizational boundaries. The information content being "mashed" originates from the content providers and these providers are frequently unwitting of how their information is being used downstream. The Mash up may or may not be executed where the Mash up site is located as Mash up can be implemented via traditional Web applications using server-side dynamic content-generation technologies like Java servlets, Common Gateway Interfaces, Hypertext Preprocessor, or Active Server Pages. The client's Web browser provides the user interaction and the rendering of the application and data.

Information systems have become an integral part of our lives. If you are going to look for a place for future study, we consider the countries, cities, looking to the Internet, offers higher education institutions, training programs, living conditions, as well as the cost of the education, reading and the set of reviews and opinions. It takes you a lot of time.

You have to browse many sites in the search for the desired university

For all this, there is no solid, objective picture of the upcoming site study and arrived on the scene, to catch a lot of nuances and not other issues. Solution may serve as, a global view of data, storage in all the colleges of the city, their visual appearance, living conditions, low education, educational-methodical base information about the graduation diploma and its accreditation. For this problem it is proposed to develop an information system of universities based on Mash up technology, which allows the user to choose on the map Google Maps, place the desired trip of study, gives the user full information about the selected object of study, and the approximate cost of this training, this information sheet, pictures, and that is also not a few important presentation videos from the place of future study.

This information system solves the problem of fast search of information required, thus serving as an electronic guide, its global and unified view, while reducing the time and effort of searching.

Analysis of technologies for the creation of portal solutions

Web 2.0 provides a new way for users to interact with and through the Internet. Second generation of web-based services such as social networking sites, wikis, communication tools, etc. It emphasizes online collaboration and sharing among users [1].

Web 2.0 defines a new way for users to interact with the Web versus a new version of technical standards. Also it has been defined as the transition of Web sites from isolated information to sources of content and functionality.

Today 2.0 technologies could affect your ambient learning in a very positive way. Before the enterprise Mash up, the user had to sign in to several applications and go to different web sites to manually collect the information and then try to make sense of it. The enterprise Mash up web application overcomes this hassle in an elegant way and allows the user to harness more of the collective intelligence in the enterprise to make better decisions [2]. Mash up has the opportunity to increases the strategic value of learning by delivering enriched information to users and reduces time cycles spent on custom development.

In technology, a Mash up is a web application that combines data from more than one source into a single integrated tool an example is the use of cartographic data from Google Maps to add location information to real-estate data, thereby

Creating a new and distinct web service that was not originally provided by either source. Mash up is a web application that is created by mixing and matching two or more web resources in an easy and fast way. It can be designed as a web page with embedded scripts that utilizes the resources from within a browser environment [3]. Alternatively, it can be designed as a hosted application where resources are joined in a server environment, and to which a user connects through his browser.

The resources may be widely variable, ranging from geographical map data, to language translators, to generators of instant messages. In general, any web resource that is accessible through a set of common web protocols (such as HTTP, SOAP, REST, etc.) is eligible to be used in a Mash up [4].

The architecture of Mash up web applications is always composed of three parts [5]:

- the content provider: it is the source of the data. Data is made available using an API and different Web-protocols such as RSS, REST, and Web Service,

- the Mash up site: is the web application which provides the new service using different data sources that are not owned by it,

- the client web browser: is the user interface of the Mash up.

Client web browsers using client side web language for example JavaScript, php, and asp.net.

Development of Mash up can be done by everyday Web users with a grip of scripting skills are not limited to seasoned software developers.

Based on the level of enterprise of a Mash up in terms of security and governance, we identify 2 main kinds [6]:

- consumer Mash up relates to the more web 2.0 styled simple creation that are usually one time used;

- enterprise Mash up that encapsulates heavy security governance requirements.

Development of educational portal based on Mash up technology

Mash ups and portals are both content aggregation technologies. Portals are an older technology designed as an extension to traditional dynamic web applications, in which the process of converting data content into marked-up web pages is split into two phases - generation of markup "fragments" and aggregation of the fragments into pages each of these markup fragments is generated by a "portlet", and the portal combines them into a single web page. Portlets may be hosted locally on the portal server or remotely on another server. Portal technology is about server-side, presentation-tier aggregation. It cannot be used to drive more robust forms of application integration such as the one using two phase commit.

Educational portal is available from multiple sources on the internet based on Mash up technology is used to mix and match in an easy manner various resources available through the internet (fig. 1). Being a generic technology, it can be used (and is used) by individuals and groups with a broad background. Mash up technology provides functionality to quickly put together available resources to form a new application (data collection functionality, filtering functionality, etc.). Additionally, they provide tools to make this easy for users. In general, quickly build new web applications using existing online resources. More specifically focused on researchers, Mash up technology may be used to support daily tasks and activities of researchers.
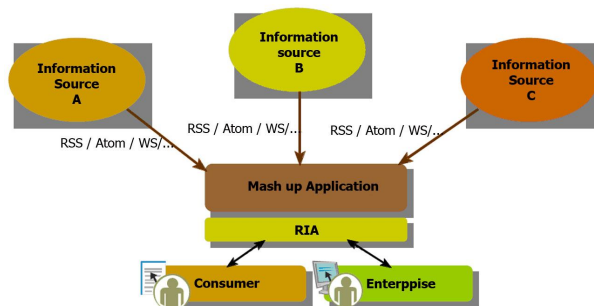

Fig. 1. Mash up pictorial representation

Web Mash up is a web site or web application that uses content from more than one course to create completely new service (fig. 2).
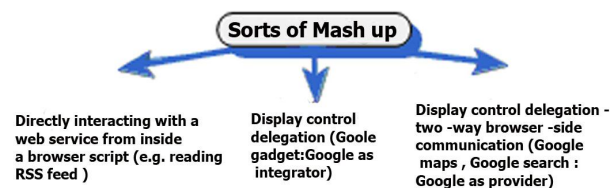

Fig. 2. Sorts of Mash ups

Content used in Mash up is typically sourced from a third party via a public interface or so called API

Web Mash up = API[1]+API[2]+…+API[N].

An analysis of the subject area has been identified key features that must perform under development portal.

The portal contains information about the universities, education news, announcements of competitions and conferences in the field of education. The site provides a vote in order to obtain statistical information. Based on the identified functions, the scheme was set up educational portal, which includes next pages:

- main – the main portal page, displaying the latest information from each section;

- educational news - news of Education of Ukraine and the world, links to informational sources;

- informational resources - links to useful resources on education and official publications of educational institutions;

- universities - list of universities with the ability to search by location and specialty;

- projects - information about projects in educational area, both foreign and Ukrainian;

- competitions - information about competitions, which take place among students;

- conferences - schedule of scientific conferences;

- forum – opportunity to communicate and share information for portal users;

- voting - allows users to participate in surveys and polls, and view their results;

- search - the search for information on the site by keywords;

- subscribe - subscription to receive a newsletter by e-mail.

The portal also includes reviews of foreign students studying in Ukraine, the legal framework concerning the rules of admission to educational institutions, foreign nationals, information about the rules of stay of foreigners on the territory of Ukraine.

The multimedia resources (sound, image, animation) are nowadays excellent tools to transmit information. Most of the sites and portals have multimedia resources, because they offer a pleasant aspect and facilitate the information understanding.

There for Mash up could be exist (fig. 3):

Mash up = API calls + Data Manipulation + UI.

Enterprise Mash up can combine existing internal data with external services to create new views on the data, it includes 3 types: Presentation level, Logic based, Data level.
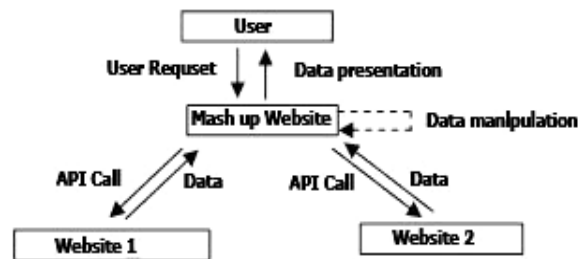

Fig. 3. Mash up interactions

Presentation level Mash up

The structure of the presentation level Mash up is represented on the fig. 4.
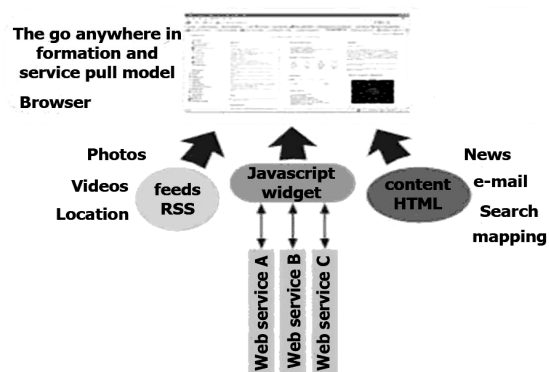

Fig. 4. Presentation level Mash up web 2.0 desktops

The structure of the portal includes:

- set of simple widgets each facing content from different sources;

- information and layout is retrieved and either remixed or just placed next to each other;

- a lot of the AJAX desktops (or personalized start pages) fall into this category;

- portals where portlets fetch data from multiple sources.

A distinctive feature of Internet portals and web sites - the desire for an integrated view of different types of information, which is achieved through the creation and support of thematically structured and logically coherent information architecture of a resource and providing an effective tool and easy navigation in it. The fuller it is satisfied the system requirements, the more successful are the results of an Internet project, the more useful and popular will he among the users. In the real form of information and navigation integrative properties of Internet portals and sites are manifested in the characteristics of convenience, informative, logical, equipped, navigation user interface, unified concept of "usability".

Logic based Mash up

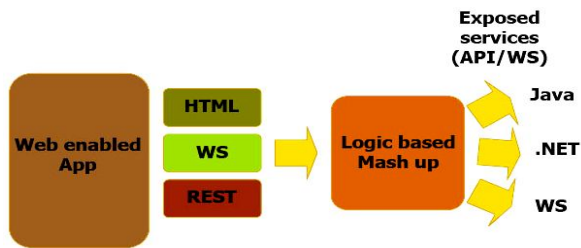The structure of logic based Mash up is represented on the fig. 5.

Fig. 5. Logic based Mash up

Logic based Mash up includes:
- comparative complex,
- involves programming,
- programmatic access to business logic through REST SOAP services,
- act as an adopter that connect to any web enabled application.

Data level Mash up

The structure of the data level Mash up is represented on the figure 6.

Extracts and collects data from a different web enabled data sources Result of content integration can be made available in: database, XML, RSS, Etc.

So for more Mash up portal example's there is:

1) data Technology's web portal it's a live Mash up technology meets the needs of small to mid sized businesses by providing a simple, cost-effective way for such companies to exchange documents electronically with their trading partners and offers the flexibility and scalability to grow as the business grows without the need to invest in new technologies and the associated maintenance costs of the supporting hardware and software systems;

2) information system educational portal based on Mash up technology. Which allows the students to choose on the map Google Maps, place of there universities, gives the students full information about the selected university and the approximate cost of the study in this city, which faculties and specialist, bank's services, and not a few important videos about the chosen city. This information system solves the problem of fast search of information required.

Conclusion

Mash up is a great technology to create light-weight, data-centric applications for everyday-use. Mashing up is done using components that embed meta-data, that do not require a high end SOA solution. Mash up demonstrates business agility, on application development time and costs.

The purpose of this work is the creation of an information collect (poison, information, pictures and videos) about the universities, this collection of information that I made it by using the ability of Mash up technology to mixing to many resource sites in on site and this will be convenient an educational portal for all students, this way the students don't have to spend all that long research time and effort to find up the university and specialty to collect information about.
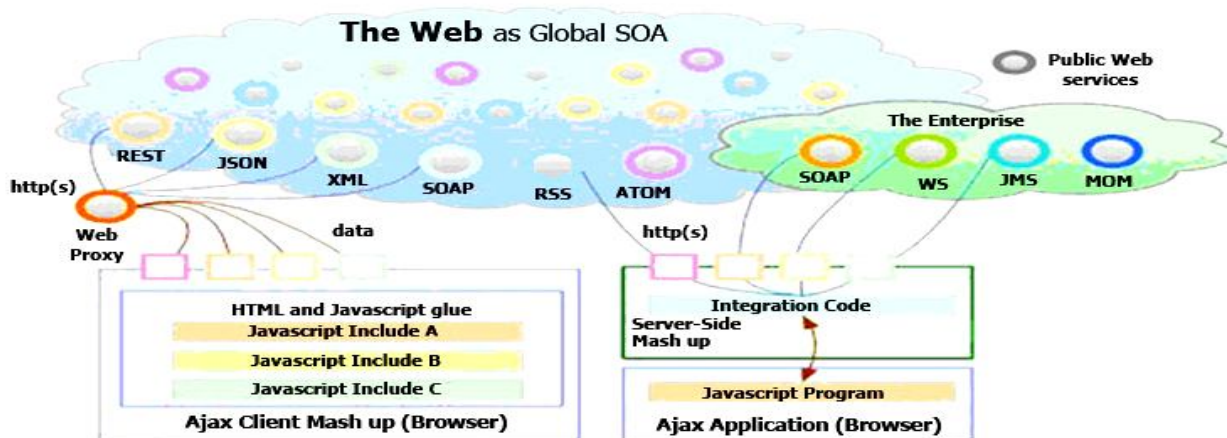

Fig. 6. Web Mash up styles (In-Browser and Server-side)

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РОЗРОБКА ОСВІТНЬОГО ПОРТАЛУ ДЛЯ ІНОЗЕМНИХ СТУДЕНТІВ НА ОСНОВІ ТЕХНОЛОГІЇ MASH UP

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В останній час розповсюдження отримали технології та інструментальні засоби, які забезпечують створення web-додатків за рахунок інтеграції інформації та сервісів різноманітних ресурсів мережі Інтернет. В статті розглядаються питання, пов'язані з використанням технології Mash up при створенні освітнього порталу для іноземних студентів. Представлені особливості розробки web-додатків Mash up на трьох рівнях: даних, бізнес-логіки та уявлення. Розглянута структура портального рішення, а також особливості взаємодії з програмними інтерфейсами Інтернет-ресурсів та web-сервісами. Освітній портал, якій збудований на основі технології Mash up вирішує задачі пошуку, обробки та представлення релевантної інформації у зручному вигляді, дозволяє здійснювати пошук вищих навчальних закладів, переглядати інформацію про них, а також здійснювати зрівняння університетів між собою на основі ряда критеріїв, які визначає користувач.

Ключові слова: Mash up, освітній портал, web 2.0, ресурси, сервіси.

РАЗРАБОТКА ОБРАЗОВАТЕЛЬНОГО ПОРТАЛА ДЛЯ ИНОСТРАННЫХ СТУДЕНТОВ НА ОСНОВЕ ТЕХНОЛОГИИ MASH UP

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В последнее время широкое распространение получили технологии и инструментальные средства, которые обеспечивают создание web-приложений путем интеграции информации и сервисов из различных ресурсов сети Интернет. В статье рассматриваются вопросы, связанные с применением технологии Mash up при создании образовательного портала для иностранных студентов. Представлены особенности разработки web-приложений Mash up на трех уровнях: данных, бизнес-логики и представления. Рассмотрена структура портального решения, а также особенности взаимодействия с программными интерфейсами Интернет-ресурсов и web-сервисами. Образовательный портал, построенный на основе технологии Mash up решает задачи поиска, обработки и представления релевантной информации в удобном виде, позволяет осуществлять поиск высших образовательных учреждений, просматривать информацию о них, а также производить сравнение университетов с друг другом на основе ряда критериев, определяемых посетителем.

Ключевые слова: Mash up, образовательный портал, web 2.0, ресурсы, сервисы.

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