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Online Information Retrieval Systems Trending From Evolutionary to Revolutionary Approach

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INTRODUCTION

Information has been available since the evolution of the world and is being applied every day. McCreadie and Rice (1999) summarize the concept of information that has been proposed over the years in various studies and explains information in four different ways. Firstly, as a representation of knowledge, studies are of the opinion that information is a representation of knowledge. Earlier when there was no concept of internet and digital media, the printed documents were assumed to be the primary representation of information. But with the advent of ICT, this view point has changed from print to the electronic media (Lievrouw, 1988). Secondly, as a data available in the environment, some of the researchers view information in broader paradigms which may include objects, sounds, smells, events, activities, artefacts, even any phenomenon of nature, etc. The data may not convey any message as such but can be informative if interpreted appropriately (Buckland, 1990; Taylor, 1991). Thirdly, as a part of communication process. Various researchers tend to believe that information is a part of communication process among individuals of the society. Social elements play vital role in processing and inferring the information which are not treated as physical or cognitive activities apart from the work of individuals but regular intrinsic activities which constitute the very nature of people while interacting in organizations (Atwood & Dervin, 1982; Solomon, 1997a; Solomon, 1997b; Solomon, 1997c). Lastly, as a resource or commodity. Some researchers stress upon information being a resource or a thing which can be generated, acquired, replicated, disseminated, employed, organised, traded, sold and exchanged. It is transmitted from a sender to receiver in the form of a message and is later interpreted at the receiving end (Arrow, 1979; Bates, 1988; Buckland, 1991; Hirschleifer & Riley, 1992). But all this makes sense to end user if this information is retrieved and received at right time with minimum of fuss and intricacies. That is where concept of information retrieval system comes to play its role, more so in cyberage when zillions of terabytes of information is generated every year.

Man by its intrinsic curiosity to gain new insights of himself and surroundings has always been on the path to search and sift whatever satisfies his intellectual quest. Every time he searches for some specific information, he draws strategy in mind to retrieve the desired information. Nowadays in order to retrieve the desired information one must have good knowhow of search mechanism. It all started at the fade end of the 20th century, with the invention of the World Wide Web that revolutionized the whole world and with this followed the exponential growth of information. Information seeking was already the basic nature of a man, and now two decades later, it has become a part and parcel of our day to day lives. The trend of information search via the traditional library

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environments has been entirely evolved over the years to a virtual space called Web, where all this information can exist. Web contains all sorts of digitized as well as born digital formats of information which are just a click away from the users. With each passing day, World Wide Web gained popularity, thus searching through the web, also referred to as the information retrieval on the web, has become an important research area.

The Web has the features of being an information space having free access with no particular focal point to control and scrutinize the dissemination of information resulting in many challenges including the maintenance of authenticity and quality of information. Thus, various computational tools are being used in order to perform the search processes over the web among which the most widely adopted approaches are web directory and search engine services. In a web directory, the data in the web is organized in a classified manner having some hierarchical structure making it equivalent to the traditional library system. Search engines, on the other hand, are simply the web portals used to find information on the web. These have the capability of indexing large segments of the web and then storing the information in their databases. In contrast to a web directory, the processes of a search engine are carried out automatically (Zhu, 2011). Apart from web directories and search engines, there are a number of information retrieval tools that have evolved over the years revolutionizing the concept of information retrieval. In this perspective, the present study delves deep and highlight various trends in online information retrieval from primitive to modern ones. Furthermore, the study has made an attempt to visualize the future requirements and expectation keeping in view the ever-increasing dependence on diverse species of information retrieval tools.

BACKGROUND

The evolution of man has begun millions of years ago. With this, information has also evolved right from the beginning. This information has passed on to generation after generation with so many advancements through its way. Primitive man may not have farsighted the importance of storing this information, but with time it started getting clear for him that unaided memory, actions and speech cannot be sufficient to recapitulate all the information and transmit the same to future generations. Consequently, he started storing this information with whatever source he could get hold on, e.g. stones, leaves, parchments, clay tablets, wax tablets, etc. Historians and anthropologists make this advancement of primitive man evident from various live examples available even to this date like cave paintings, pictographic and hieroglyphic forms of writing, primitive sculptures, etc. Most of these storage media have flaws of deterioration in one way or the other making it obvious for people to search for other ways of storing information that could last long. Subsequently, Egyptians came up with the idea of stalks of papyrus plant pounded flat and pressed into a relatively acceptable writing surface, resulting in the existence of long strips of stalks that could be rolled. These scrolls thus became one such early forms where information could be stored. But it was difficult to locate a particular piece of information from such long scrolls. A great technical development of information storage on scrolls came when these long scrolls were cut and bound together in the form of what we today call as a 'book'. The early set up of holding the stored information was not much of a problem to organize as it was only confined to a limited stock and keepers of this information were thoroughly familiar with its entire content. This stood true only upto the invention of printing press in 16th century which revolutionized the concept of information production. This great invention enabled man to create new records with far better pace than the manual approach and duplicate the same in ample quantity. This