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Online Programming Learning - A New normal after COVID 19

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Abstract

Education is one of the basic rights of humanity. Like other sectors, this education industry has witnessed a new normal after COVID 19 pandemic situation. Education sector being one prioritize sector, tends to set a new normal after the pandemic crisis. The blended teaching learning mode is emerging very high, especially during the lockdown situation, changing the dimension of modern education. In this paper we have performed a study on the adaptability of new learning techniques and we have also developed a framework for learning online coding. Our platform not only supports the student by learning coding but also it acts as a common portal where the students can post questions and interact over a topic.

Keywords: Internet Usage, ICT, Flipped Classroom, Zoom, CodeBlog, Python Flask

I. Introduction

Year 2020 is going through an abrupt situation in all aspect of management and technologies as well. We have to imprisoned ourselves for safety for a long day but our economic activities should go on. To keep a balance in the situation, like many sectors, education sector has also witnessed a paradigm shift. Though the concept of Information and Communication Technology (ICT) was started on 1951 and introduced in education in 1960[1], but India was steps behind adaption of ICT based education or the new mode of education – Blended teaching learning mode. The online or ICT based teaching learning mode was introduces in India through Rashtriya Madhyamik Shiksha Abhiyan in 2004[2]. Presently Government of India has invested a lot of amount in expanding of Technology based education. The Government has included 87033 Government and Govt aided secondary and higher secondary school from different states and union territories under this scheme.

According to a survey done by MHRD in 2015-16 accounting year, the state-wise overall growth rate is showing in the following figure (See Figure 1.1):

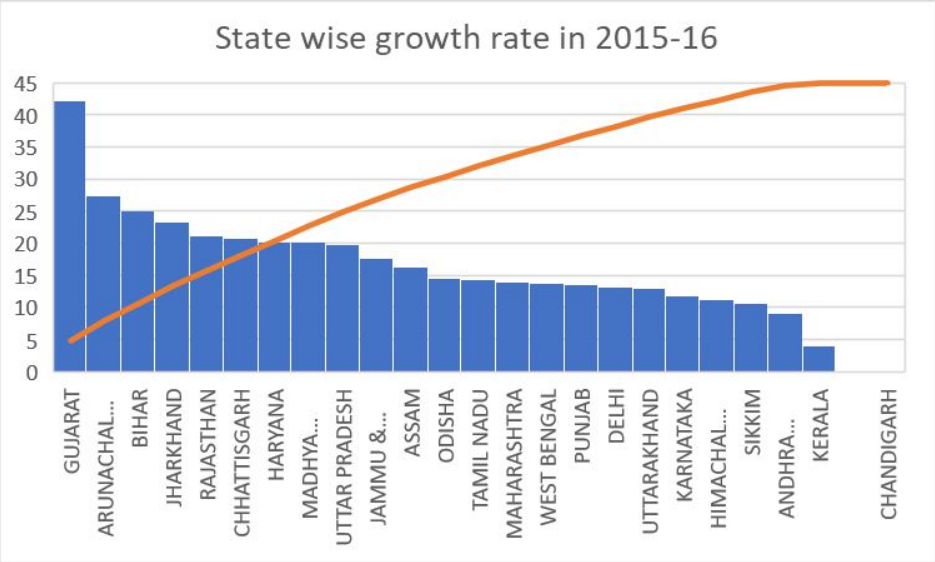

Figure 1.1: State-wise educational growth Rate in India (In 2015-16)

Our traditional teaching learning methods have witnessed a new move after internet becoming available to every corner and with the emerging use of broadband. In many countries, there are certain policies to promote the new age digital teaching learning mode. They issue one laptop per child scheme, online digital library or flipped classroom concept [8]. ICT based education depends on certain factors like internet facilities, bandwidth availability, mindset to adapt the new mode of teaching.

Internet being a prime factor for development of ICT based education system is almost inevitable nowadays. The internet users around the world in 2020 Q1 may be observed in the following figure (See Figure 1.2)

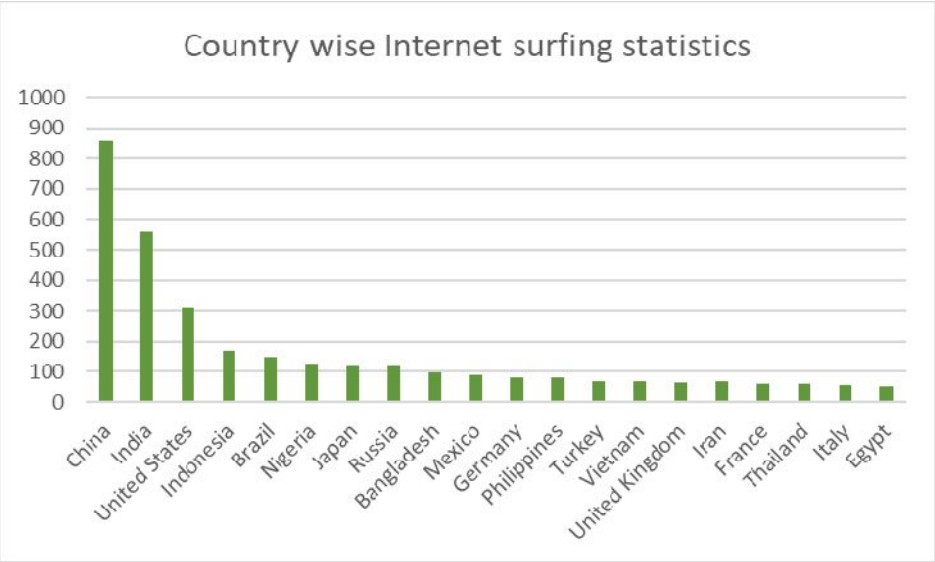

Figure 1.2: Country-wise statistics of Internet users

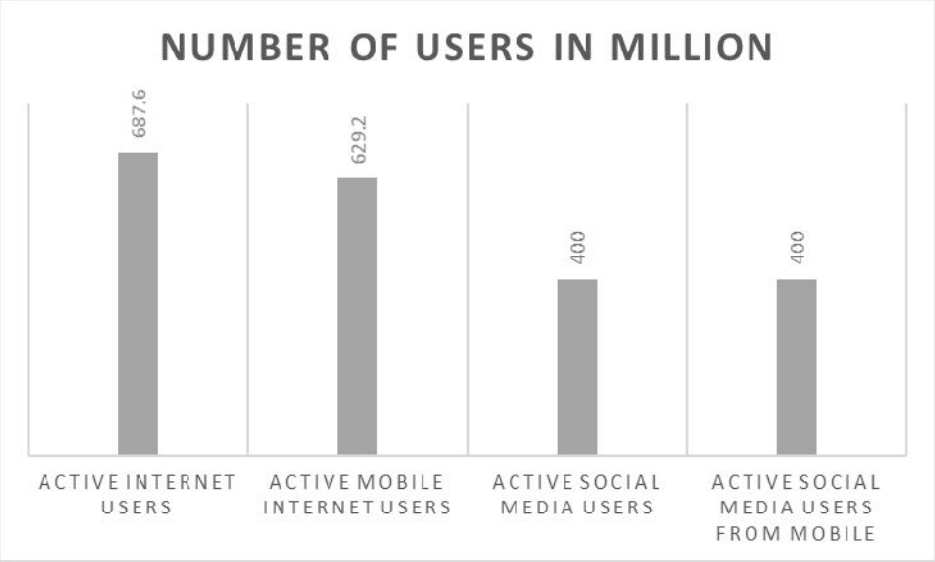

Figure 1.6: Number of users using mobile internet in India [9]

Area wise internet penetration rate can be observed in the following figure. In urban area the internet penetration rate is higher than rural area, from which the highly increasing broadband user rate may be keenly observed. [10]. See in figure 1.3.

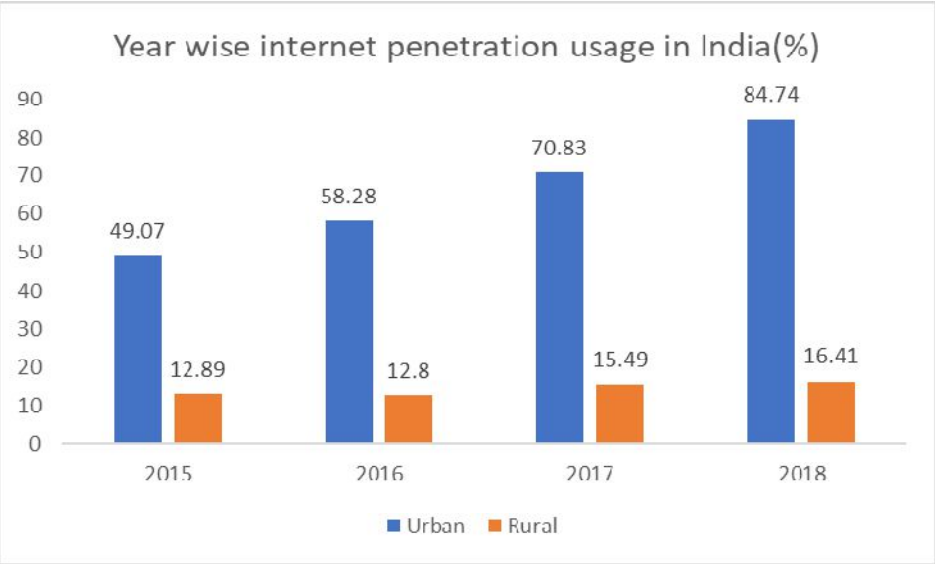

Figure 1.4: Area wise internet penetration rate in India [10]

But one of the issues may be internet speed availability in India. In the following figure we can observed a year wise growth rate in broadband users (See Figure 1.5)

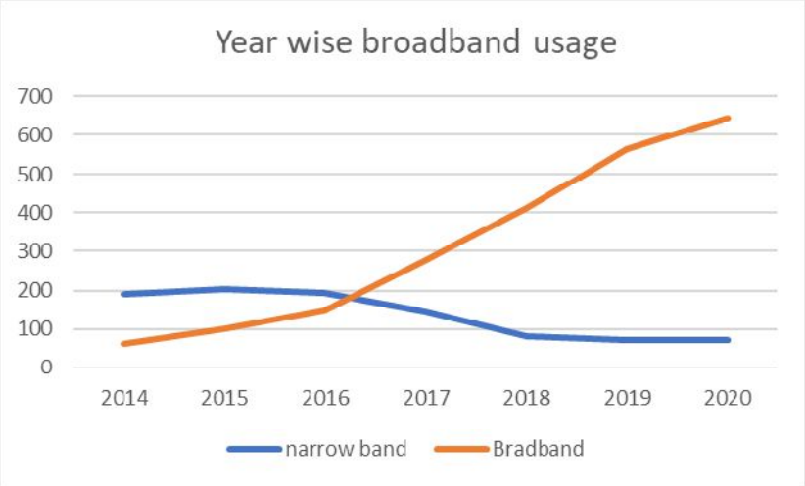

Figure 1.7: Year wise Broadband user rate in India [10]

From the above statistics one conclusion may be drawn that India is not lagging using the internet in daily life and the broadband usage here is increasing since the last few years. Though the internet penetration rate in urban areas is higher than in rural area till now, but year wise it is showing an increasing rate in rural areas also.

The present statistical analysis shows that the current situation is supportive towards adapting online education. In the next segment, we have discussed relevant studies about different existing studies related to online learning platforms.

II. Related Background Study

Most researchers have performed their study based on demographic surveys through questionnaires.

As a result of their study they have analyzed their data and get a prediction about their data.

Many researchers are working in this field. They have researched the use of ICT in education. People from multiple countries have studied this. Most popular approach for getting the insight is preparing a questionnaire and performing a survey ([11]-[17],[19]-[25]). A group of researchers from Malayasia have done their research showing how use of ICT will replace traditional teaching learning methods (Simin Ghavifekr and Wan Athirah Wan Rosdy,2015). They have prepared a questionnaire and based on respondents' answers they receive the conclusion has been drawn which in turn resulting in better effectiveness of use of ICT both from student as well as teacher side.

In 2015, a research was conducted on ICT based education systems in India by Syed Nitas Iftekhar and Hyeon Jihye. The authors performed research on use of ICT and skill in adult literacy. They have suggested how India can develop an efficient and effective ICT based education system.

Along with several papers published in this area, we have also performed an analytical study on several existing learning platforms such as Byjus, w3school.com,tutorials point etc. They provide good content. Except for a few limited sites, most of the sites are not providing video contents. Byjus provides content from infant to specialized students.[25-26].

III. Research Methodology

For performing this research, a quantitative methodology has been used and a set of questionnaires has been prepared, finalized for the targeted respondents, and distributed among the targeted sample population who belong to the teaching community of India. The questionnaires have been designed to properly address research objectives for checking the readiness to adapt education 4.0-the new normal in Education, which has emerged during the pandemic of COVID 19. We have proposed an online coding platform based on PHP and Python Flask, which enable the student community to learn coding in our framework[15-19].

The following diagram shows the framework on our learning platform. This diagram explains how the learning portal has been designed and how users can interact with the platform. The following Data Flow Diagram gives a clear picture of system's working mechanism(See Figure 1.8)

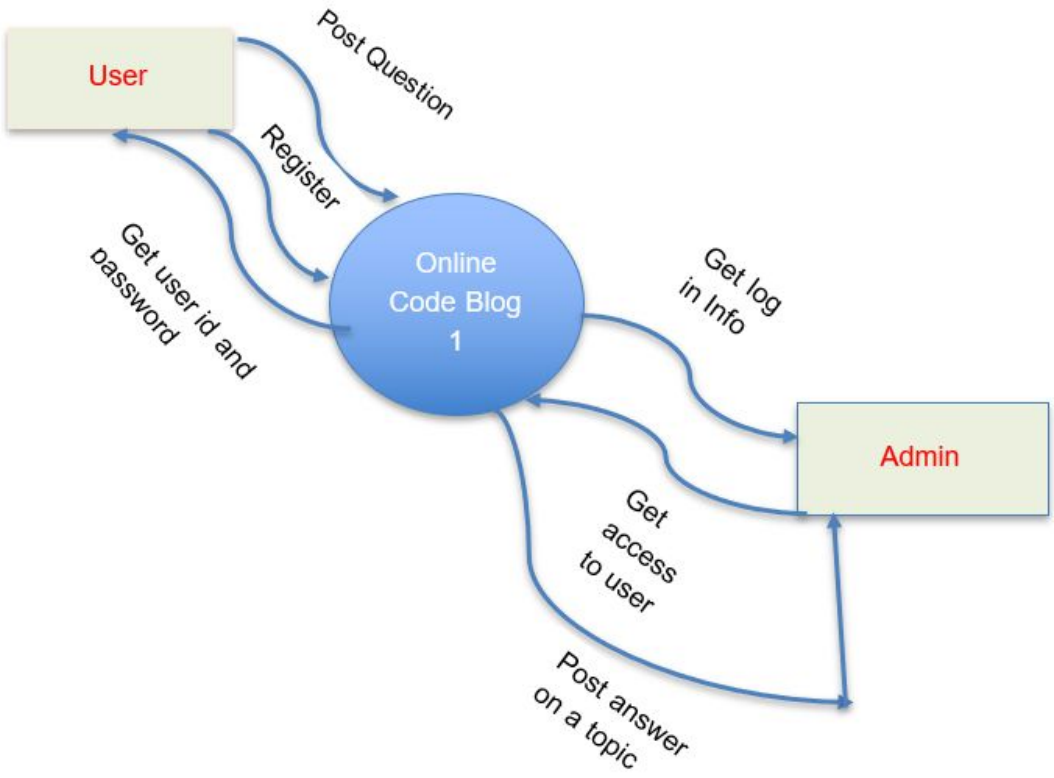

Figure 1.8: Framework of our proposed work

IV. Conclusion and Future Scope

The online learning platform will cover the learning aspect of programming language in an interactive manner. It is very essential as well as an efficient technique, especially after COVID 19 pandemic situations. During the lockdown phase, the education sector has witnessed a new normal. The present work has designed a framework based upon the demand of the present scenario. It is only limited to a small number of programming languages. In future, we shall extend the range of languages as well as we shall add video lectures and we are also planning to customize the learning platform by making personalized contents based upon the expertise level selected by the users.

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