**Research Article**

# An XHTML Application to Determine CIIT Expertise

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**Abstract:** The aim of the study is to provide the means to the faculty of COMSATS Institute of Information Technology, henceforth called (CIIT), who have PhD students ready to be examined for their PhD Degrees. As yet no rule exists demanding external examiner be taken from CIIT, but the time is not far off when such a rule is going to be made in view of the runaway expenditure and appropriateness of examiners. We first describe the structure of the CIIT which is ambitious enough to take a good research position among some 130 universities of Pakistan. This attitude is the outcome of the phenomenon whereby each year Higher Education Commission (HEC) of Pakistan issues a data indicating which university is doing better with regard to its resources. The runaway expenditure of the CIIT might someday provide justification to seek reduced expenditure to have the said rule. It is conjectured that such a study can be expanded to cover in its domain further benefits covering job seeks, seminar givers etc. An XHTML file has been prepared for the experienced CIIT faculty of 8 campuses who may like to be on the list of external examiners. As yet only the artificial names were prepared. The file has been satisfactorily browsed over an XHTML browser. The advantages of XHTML over old technologies like Access and Excel are apparently convenient and the gain of ability to convert XHTML into HTML file, the still extant language of the web file.

**Keywords:** CIIT expertise, DTD, HTML, XHTML

## INTRODUCTION

COMSATS Institute of Information Technology has 8 campuses scattered all over Pakistan. It has about 1500 faculty members. A vast number of its faculty members are doctorate from West European countries. COMSATS is producing a good number of MS and PhD students every 6 months. Soon it will be desired that external examiners for MS and PhD students of COMSATS be preferably taken from the COMSATS. No rule yet exists which seeks external examiner locations to be exclusively COMSATS, but time is not far off when it may become rule in view of the cost, incurred by COMSATS. Besides the reasonably justified desire there is the high cost of external examiner for PhD students.

COMSATS Institute of Information Technology (CIIT) is a leading degree-awarding institute in Pakistan. COMSATS stands for Commission on Science And Technology For Sustainable Development In South East Asia. COMSATS was the brainchild of Prof. Salam (Nobelprize.org, Nobel Media AB, 2013), the Nobel laureate. There are some 18 countries, mostly in Asia, which are the members of the organization. Since it was Pakistan's initiative, it took the pivotal role in its sustenance. According to the scheme all the participating member countries meet once a year.

COMSATS Principal seat where all the big wigs of administration live is at the capital Islamabad, Pakistan. We will henceforth call it CIIT. COMSATS Campus at Lahore will be called CTTT Lahore. The CIITLahore started a new educational program with the help of Lancaster university, UK called a Dual Degree Program (DDP) in 2011 (COMSATS Institute of Information Technology, Lahore, DDP, 2014). CIIT has offices in 21 courtiers in Asia, Africa and Latin America. The CIIT principal seat (COMSATS Institute of Information Technology, 2014) started in 2000 with one campus in Islamabad Pakistan and now has 8 campuses in Pakistan. It first started internet service and tertiary education service in 2000. In 2007 CIIT initiated ILO (International Liaison Office). The ILO is working to enhance COMSATS image among foreign countries. CIIT has 8 campuses now across Pakistan and has signed 16 national and 48 international MOUs. It has 63 programs. Some 15 people are working for the ILO (International Office, 2014).

The joint venture regarding DDP is an educational adventure which bears unparalleled novelty in the domain of education in Pakistan. The participant in this adventure belongs to CIITLahore. The Department of Computer Science, the Department of Electrical Engineering and the Department of Business Management of CIITLahore took part. Each of the above said departments have many undergraduate

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programs running but in the beginning these departments have undertaken one program of their departments. Lancaster University (UK) enjoys 123rd position in the word's more than 1800 universities in research. Within the UK it consistently ranks in top 10 universities.

The novelty of the adventure is that each student who takes admission in COMSATS Lahore from Fall 2011 becomes automatically the member of the scheme and must pay the enhanced tuition fee to COMSATS Lahore and the registration fee for Lancaster University. The student who successfully completes the DDP program gets two degrees at the conclusion of the program which is completed in its entirety at the COMSATS Lahore. The two-degree-novelty has not been experienced nor thought before in Pakistan. The Lancaster University of UK enjoys high reputation across the world, both in postgraduate research and undergraduate study. The following links and some more explain more about the COMSATS Lahore and the joint venture with Lancaster University (UK).
http://www.comsats.edu.pk/
http://www.ciitlahore.edu.pk/PL/ddp.aspx

Besides the two degree acquisition, one from COMSATS and the other form Lancaster University (UK) the whole program would be delivered in COMSAT Lahore. The expectation was that DDP would be an instant hit with the student's community. In 2010 the DDP applied to those who were given the choice to join or not. Now the DDP program applied across the board to all the students of the main campus of CIITLahore whether they liked or not.

CIIT has a reputation in both official degree awarding-institutes and private institutes in terms of research. The institute has an enviable reputation in quality research. Presently about 300 MS and PhD students are undertaking the degree program in various disciplines of basic science, engineering sciences and information technology etc.

The CIIT has a short history of development and growth in the hierarchy of the universities in Pakistan. The ranking of universities is made by Higher Education Commission (HEC) and the data are taken from the trusted source: Thomson Reuters and ISI web of knowledge. According to the statistics for the year 2007 and 2008 CIIT has been ranked among Pakistani Universities at 7th place among some 200 universities on the basis of aggregate research and impact factor.

Before moving towards results and discussion the following applications used for searching and arrangement of information on Web is worth considering.

**DocBook:** DocBook was designed for detailing a serious set of books. DocBook originally started out as an SGML application (Huddleston, 2008). As an outgrowth of being defined by a DTD (Huddleston, 2008; Pardi, 1999), DocBook 4.X (Walsh, 2010) formats were required to live within the restrictions of being defined by a DTD. DocBook offers a large number of features.

**Stack overflow:** Stack Overflow is a question and answer site for professional and enthusiast programmers. It's 100% free, no registration required. There are a host of technologies available. Notepad is a simple text editor and has been with us ever since 1985. IT has been lumped with WORD processor. Its new version notepad++ (Ho *et al.*, 2005) deals with many other things. Notepad++ has many new technologies inserted into it; some of which from among a host of technologies are.

**Server fault:** You may need to run the external tools: compiler, interpreter or web browser (via Run dialog) by passing the current edited document as argument. To do so you have to use environment variables. The NppExec (NppExec Mannual, 2013) plugin will give you plenty of extra flexibility.

SEO chat is a good service for the beginners. There are popular SEO forum categories where the membership is free and the question and answer session take place. Important forums are:

- Google optimization
- Search optimization
- BING search optimization

SEO forums have also collected statistics with regard to its usage from different quarters of American society. It is dedicated to helping learners and professional alike in entering their knowledge.

## RESULTS AND DISCUSSION

A complete XHTML (Huddleston, 2008; Pardi, 1999) program along with its epilog and prolog has been written. This program deals with determination and pleasant display of specialization of the entire CIIT. The beauty of the program is the determination of those who are willing to accept the external examiner-ship for MS and PhD students of any department in any campus of CIIT.

Also the complete information of the said faculty with regard to their specialization and secondary information as telephone number, place of work, e-mail address etc., can be available for contact.

Suppose a body A has supervised some of his/her students at the Lahore campus of COMSATS, he/she is looking for an examiner for his students and has no means to find one from 8 COMSATS campuses scattered all over Pakistan. For personal knowledge of would-be examiner is quite difficult. Even though it is not a condition to have an external examiner from COMSATS, but we have a reason to contend, why look for someone from outside when we have plenty of our own. Nobody cares for the external examiner in the beginning of the project. This project will provide the means to anyone inside COMSATS to look for the

specialization of anyone through his computer, whether the would-be examiner is nearer or distant. Personal experience tells that people do not know the specialization of their colleagues even in the same campus.

The XHTML DTD has one big advantage. Its tags or elements are self-descriptive and are therefore understandable. XHTML deals with pure text. It can be transferred and saved as a pure text and therefore does not depend upon the specific applications to do the transfer and saving. If you need stylistic representation, you need to incorporate, the said styles in the XHTML document. Or the XHTML has to take the help of CSS or XSL because it does not have its own facility.

As more and more names emerge with the increase in enrollment of the faculty those names can be added. Actually, in the placeholder of 'names' the actual names need to be inserted. Thus, if the name of Lahore CS is Mirza Javaid Sikander the actual name needs to be inserted.

Of course before we grapple with the XHTMLDTD, which is an easy way to write DTD, the document must be written in XHTML so that the addition and deletion of the new elements can be foreseen. XHTML is a great self descriptive language but in its elements, it does not have stylistic representation. The stylistic representation and the self-description of the tags, both of them can be had, by writing a suitable application where the effect of both can be had; for instance conversion of XHTML into HTML as shown below. Instead of virtual repetition, we will concentrate more on Lahore. Just to keep repetition we will have another one as well like below:

> Display: block
> Font-family: Arial Helvetica
> Font-weight: Bold
> Font-size: 20 pt
> Color: 9370 db
> Ext-align: center

It is much better if we start from the XHTML document without Prolog but if we have reasonable expertise and the hierarchy of the elements in the document we could start straightaway even if we do not have the written document in front of us.

We have used CSS. CSS was used in designing ordered list:

> <xml version = 1.0 encoding = "UTF = 8"
> <DOCTYPE CIITS
> PUBLIC "-//W3C//DTD XHTML, 1.0 TRANSITIONAL//EN"
> http://www.w3c.org/TR/xhtml/DTD/xhtml1-transitioonal.dtd.

In DOCTYPE declaration we insert Document head which contains the following.

Title; There must be only one title and it must not be considered as part of the URL.

## CONCLUSION

An XHTML document was developed with 10 artificial names of the faculty. Artificial names, because as yet it was unknown who would be ready to become the external examiner. Many soft copies of the documents were prepared which were run separately to see the efficient working of it and determine the fast implementation.

The application has been successful. This study is the first one of its kind using internal and external DTD. The information of all the applicants is essential before their names could be used. It is a huge task because expectedly all the PhD faculty members of 8 campuses are desirous to register for external examiner as is known by the verbal queries. How to quash the unnecessary information which exists in the form of attributes in the documents to minimize the downloading time is essential.

Table 1: Abbreviations of campuses and their departments

| Terminology | Meanings of the words |
|---|---|
| CIIT | CCOMSATS institute of information technology |
| CIITAbbotabad | CCOMSATS Abbotabad campus |
| CIITAttock | CCOMSATS Attock campus |
| CIITGujrat | CCOMSATS Gujrat campus |
| CIITIslamabad | CCOMSATS Islamabad campus |
| CIITLahore | CCOMSATS Lahore campus |
| CIITSahiwal | CCOMSATS Sahiwal campus |
| CIITVehari | CCOMSATS Vehari campus |
| CIITWah | CCOMSATS Wah campus |
| CIITAbbotabadCS | Computer science dept of Abbotabad |
| CIITAbbotabadEE | Electrical engineering dept of Abbotabad |
| CIITAttockCS | Computer science dept of Attock |
| CIITAttockEE | Electrical engineering dept of Attock |
| CIITGujratCS | Computer science dept of Gujrat |
| CIITGujratEE | Electrical engineering department of Gujrat |
| CIITIslamabadCS | Computer science dept of Islamabad |
| CIITIslamabadEE | Electrical engineering dept of Islamabad |
| CIITLahoreCS | Computer science dept of Lahore |
| CIITLahoreEE | Electrical engineering dept of Lahore |
| CIITSahiwalCS | Computer science dept of Sahiwal |
| CIITSahiwalEE | Electrical engineering dept of Islamabad |
| CIITVehariCS | Computer science dept of Vehari |
| CIITVehariEE | Electrical engineering dept of Vehari |
| CIITWahCS | Computer science dept of Wah |
| CIITWahEE | Electrical engineering dept of Wah |

Table 2: DTD

<CIITAbbotabadCS> name 1 </CIITAbbotabadCS>
<CIITAbbotabadEE> name 2 </CIITAbbotabadEE>
<CIITAttockCS> name 1 </CIITAttockCS>
<CIITAttockEE> name 2 </CIITAttockEE>
<CIITGujratCS> name 1 </CIITGujratCS>
<CIITGujratEE> name 2 </CIITGujratEE>
<CIITIslamabadCS> name 1 </CIIltIslamabadCS>
<CIITIslamabadEE> name 2 </CIITIslamabadEE>
<CIITLahoreCS> name 1 </CIITLahoreCS>
<CIITLahroreEE> name2 </CIITLahoreEE>
<CIITSahiwalCS> name1 </CIITSahiwalCS>
<CIITSahiwalEE> name 2 </CIITSahiwalEE>
<CIITVehariCS> name 1 </CIITVehariCS>
<CIITVehariEE> name 2 </CIITVehariEE>
<CIITWahCS> name 1 </CIITWahCS>
<CIITWahiEE> name 2 </CIIWahEE>

Table 3: Particulars of representation in terms of display

```
<!ELEMENT> CIITS (CIITAbbotabad, CITAttock, CIITGujrat,
CIITIslamabad, CIITLahore, CIITSahiwal, CIITVehari, CIITWah
CIITVU)
<CIITAbbotabad> CS, EE </CIITAbbotabad>
<CIITAbbotabadProg> CS </CIITAbbotabadProg>
<CIITAbbotabadProgEE> EE </CIITAbbotabadProg>
<CIITAttock> CS, EE </CIITAttock>
<CIITAttockProg> CS </CIITAttockProg>
<CIITAttockProgEE> EE </CIITTAttockProg>
<CIITGujrat> CS, EE </CITGujrat>
<CIITGujratProg> CS </CIITGujratProg>
<CIITGujratProgEE> EE </CIITGujratProg>
<CIITIslamaad> CS, EE </CIITIslamabad>
<CIITIslamaadProg> CS </CIITIslamabadProg>
<CIITIslamaadProgEE> EE </CIITIslamabadProgEE>
<CIITLahore> CS, EE </Lahore>
<CIITLahoreProg> CS </CIITLahoreProg>
<CIITLahoreProgEE> EE </CIITLahoreProgEE>
<CIITSahiwal> CS, EE </CIITSahiwal>
<CIITSahiwaProg> CS </CIITSahiwalProg>
<CIITSahiwalProgEE> EE </CIITSahiwalProgEE>
<CIITVehari> CS, EE </CIITVehari>
<CIITVehariProg> CS </CIITVehariProg>
<CIITVehariProgEE> EE </CIITVehariProgEE>
<CIITWah> CS, EE </CIITWah>
<CIITWahProg> CS </CIITWahProg>
<CIITWahProgEE> EE </CIITWahProgEE>
<CIITVU> CS, EE </CIITVU>
<CIITVUProg> CS </CIITVUProg>
<CIITVUProgEE> EE </CIITVUProgEE>
```

As said before the idea of this study can be extended to include the admission of the students as well as many other resembling processes. The advantages we intended to derive from the developed semantic documents (Raimbault, 2010) was to enable query-makers in the case of admissions. Most of the query-maker liked to know the tuition fee, duration of the programme, location of the institute, the number of students admitted in 2011 Fall etc.

Such information undoubtedly can be represented in other forms using various technologies like Excel and Access. Query-makers not only wanted to confirm the information from traditional Internet documents, but also wanted to know the information on eligibility to enter COMSATS Lahore.

The SPARQL has some advantages over and above the SeQL and RQL; it is fast becoming a standard query-language. Its advantage is numerous, the one being that the SPARQL has the same format and syntax as XHTML and therefore new parsers need not be developed. The work is progressing to use SPARQL to answer specific queries on DDP. At present a great number of queries have not been dealt with because RDFS documents and its DTD is wildly expanding. The DTD itself expresses the data types. Possible enumeration of the courses studied by the applicants is posing a challenge. For convenience the names of the studied courses now has been uniformly described under the sort of generic names. As is expected many of the query-makers would not be able to use SPARQL, for them an interface is in development process which will produce answers to their queries simply by clicking desired bullet points on the interface. Table 1 gives the abbreviations that were used in the newly developed programs. Table 2 gives Document type definitions used in the programs, whereas Table 3 uses the abbreviations of Table 1. The department names are given outside the angled brackets.

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