ICT1512

INTRODUCTION TO INTERACTIVE PROGRAMMING

BUSINESS OF COMPUTING

FACULTY OF SCIENCE, ENGINEERING AND TECHNOLOGY

TUTORIAL LETTER 104/2011

This letter is available in English only.

Examination Project
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Dear Student

The objective of this tutorial letter is to provide you with guidance on how to prepare your examination project. We will show you how the preparation should be done, what we will be looking for when we are marking your project as well as give you examples of what we expect the outcomes of your project to look like.

If you follow the guidelines provided in this document you will produce a project that you can be proud of and which will earn you the distinction you deserve for this module.

Regards,

Ms D van Heerden

1. What is this Examination Project?

To make sure you have complied with all the module outcomes you are required to complete a small project as part of your summative assessment for this module. The project will contribute 30% towards your examination mark for this module. This project must also be submitted on the day of the examination for this module.
2. **Purpose of the Project**

The outcomes of the module ICT1512 – Introduction to Interactive Programming is as follows:

- Show that you understand problem statements provided by users in various industries.
- Apply fundamental programming principles in the development of a working program.
- Web design tools must be used to develop a solution specific and to the satisfaction of the client.
- JavaScript must be applied for the development of a program.

In order for us to determine whether or not you’ve reached all of these outcomes you need to be examined on the outcomes. As it is physically impossible for the university to have all the students write a practical examination on computers we have decided that you must do a project to show that you have mastered the outcomes.

3. **What is Required for the Project?**

You are required to contact a small business in your area and obtain their permission to create a simple website for the business. This can be a hair salon, beauty salon, service station or any SMALL business in your specific area. You are not allowed to use any big business such as Edgars, Checkers, Speedy or any similar business which have already established web sites.

The website for the business **must** have the following pages:

1. A home page with an introduction to the business and what is the business about. This page must also contain the current date in the format of day month year e.g. 19 May 2011.
   
   Example: http://www.sa-bear.com/

2. A page containing information about the services and products offered by the business. Each service and/or product must be described in full detail and a price list must also be included.
   
   Example: http://www.thedentist.co.za/services.html

3. An order form where patrons can order and/or request a product and/or service from the price list, the order form should calculate the total amount of the products/services requested, the VAT of 15% and add that to the order amount.
   
   Example: http://www.micropress-inc.com/forms/orderform.html

4. A forms page that can be completed to request information from the business about their service and/or product, the information completed on the form must be verified and implementing cookies.
   
   Example: http://coralees-florist.co.za/order_flowers.html

5. You may add any additional pages, but the 4 pages above are the minimum requirements.
You can visit the website below to have a look at business websites which have already been completed and loaded onto the WWW.
http://www.sabusinesss.co.za/directory.htm

On the day of the examination of this module you need to submit a single document, bound by a ring binder that contains the following information:

1. A cover page
2. An index
3. Your planning documentation (see Assignment 2)
4. Your code
5. Screen dumps of each page
6. The permission document, completed and signed
7. The user satisfaction survey
8. Rubric indicating the mark you allocate yourself for the project
9. Your student number must be added as the header to each page of the document.

The rubric below should be used as a check list to ensure all the information that we will be looking at when we mark the project is in the documents you provide.

4. **Project Statistics?**

Semester 1 2010 the average mark for the project was 30.58%

The reason for the low marks was because students did not submit the information required for the project as set out in point 3 of this tutorial letter. Students also paid no attention to the rubric in point 8 of this tutorial letter even though this is what is used to mark their projects.

When you have completed the assignment use the rubric provided in point 8 to mark your own project include this rubric with your marks when submitting the project.
## 5. What do I need to do?

We are going to provide you with a list of information you will need to obtain from the business, how to obtain it and an approximate time frame.

<table>
<thead>
<tr>
<th>What</th>
<th>How</th>
<th>When</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtain permission</td>
<td>Contact the business via phone or e-mail and speak to the manager/owner. Provide full details on who you are why you are contacting them. If the business indicates they already have a website you may still ask permission to develop a site for them as this is an examination project and not meant to be loaded on the Internet.</td>
<td>As soon as possible, do not wait until late in the semester to start working on your project.</td>
<td>5</td>
</tr>
<tr>
<td>Get user requirement specs</td>
<td>Draw up a list of questions to enquire what it is the business would like you to add to their website, what is the requirements of the user. You can either e-mail of fax this to the business asking them to return the completed questionnaire to you via e-mail of fax. If you are doing or have completed ICT1513 refer to the prescribed book for guidance.</td>
<td>Soon after you’ve obtained the permission of the business to do the project.</td>
<td>6</td>
</tr>
<tr>
<td>Get the information</td>
<td>Make an appointment with the manager/owner of the business to get stuff such as the business logo, detailed information about the business, photo’s etc. This should be all the information you are going to add to your site.</td>
<td>Once you have a basic layout of what the structure site will look like.</td>
<td>6</td>
</tr>
<tr>
<td>Start the development</td>
<td>Use the user specifications to start designing the layout of your website. If you are doing or have completed ICT1513 refer to the prescribed book for guidance.</td>
<td>When you received the user specifications</td>
<td>7</td>
</tr>
<tr>
<td>Design the pages</td>
<td>Do the layout for each of the pages of the site. Decide what will go where.</td>
<td>When you have all the detailed information that must be included in the site.</td>
<td>7</td>
</tr>
<tr>
<td>Task</td>
<td>Description</td>
<td>Time Required</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td>Develop the logic</td>
<td>For each of the JavaScript functions you will be adding to your code you need to design the logic. See below for an example.</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Write the code</td>
<td>Write the code for each of the pages in the website. See the example below for how to add comments to your code.</td>
<td>11 12 13</td>
<td></td>
</tr>
<tr>
<td>Test the code</td>
<td>Validate all the code using Markup Validation Service</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>User satisfaction survey</td>
<td>Make another appointment with the manager/owner of the business, show him what the end product looks like and request him/her to complete a user satisfaction form to show if they are satisfied.</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Permission documentation</td>
<td>While at the business request the manager/owner to complete the permission letter, sign it and put the business’s official stamp on the letter.</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Submit the project</td>
<td>Include all the above documentation bound in a <strong>ring binder</strong></td>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>
5.1 User Requirement Specifications

The basic specifications for the project are as follows:

1. A home page with an introduction to the business and what is the business about. This page must also contain the current date in the format of day month year e.g. 19 May 2011.

2. A page containing information about the services and products offered by the business. Each service and/or product must be described in full detail and a price list must also be included.

3. An order form where patrons can order and/or request a product and/or service from the price list, the order form should calculate the total amount of the products/services requested, the VAT of 15% and add that to the order amount.

4. A forms page that can be completed to request information from the business about their service and/or product, the information completed on the form must be verified.

You need to contact the business and find out if they have more specific requirements, such as what information needs to be added to the forms pages, how they envisage the website in terms of layout and color, what will be the primary purpose of the website, etc.

5.2 Start Developing

Draw a layout of what the entire site will look like, how will the different pages interlink with each other by creating a site storyboard and a detailed structural layout.

A quick sketch of the site's structure

This site for the (fictional) Acme Company has a total of seven (7) pages.
A detailed structural outline

The URL of each page is listed in an organized format:

www.acme.com
www.acme.com/services
www.acme.com/services/lawn
www.acme.com/services/sheep
www.acme.com/services/wool
www.acme.com/clients
www.acme.com/personnel

http://www.amacord.com/services/storybrd.html

5.3 Design the pages
Make detailed sketches of each page, clearly indicate where, which feature will be placed.

A detailed sketch of each page

Each page is sketched in detail (by hand or with a page layout program of your choice) showing placement of all text, graphics and hyperlinks.

http://www.amacord.com/services/storybrd.html

5.4 Develop the logic
For each JavaScript function you are going to add to your website you need to first design the logic. This is done by writing, in simple English (Pseudocode), each step you will be following in order to accomplish the end result of the function. For example, to verify certain information entered into the form you will have to give the parameters for the verification. Developing the logic for such verification will look something like this:

Read the user phone number
Test if phone number consists of numbers only
If user entered letters instead of numbers show error message
5.5 Write the Code
You are required to write the code yourself using a simple platform such as Notepad. Do NOT use software developing tools to help you in writing your code. The markers can see when these types of tools are being used and you will receive 0 marks for code you did not write yourself.

5.6 Adding Comments to Code
The example below shows what is meant by adding comments to your code. The comments explain exactly what each line of code does. You need not add comments to the HTML tags, but definitely to the JavaScript functions.

```html
<html>
<head>
<title>Peter's Investment</title>
<!-- The purpose of this program is to … //-->
<SCRIPT LANGUAGE="JAVASCRIPT"> <!--Hide from old browsers

function CalculateInvestment(myform) { //-->
  <!--The purpose of this function is to …
  var InvestAmount=document.InvestCalc.Amount.value
  <!--This variable will hold the value of …. //-->
  var InvestRateA=document.InvestCalc.RateA.value
  <!--This variable will hold the value of …. //-->
  var InvestRateB=document.InvestCalc.RateB.value
  <!--This variable will hold the value of …. //-->
  document.InvestCalc.ReturnA.value=returncalc(InvestAmount,InvestRateA)
  <!-- Display the return as calculated //-->
  <!-- = Call the returncalc function with paramaters needed to calculate return //-->
  document.InvestCalc.ReturnB.value=returncalc(InvestAmount,InvestRateB)
  }

function returncalc(InvestAmount,InvestRateA) {
  <!--The purpose of this function is to …
  var Irate=InvestRateA/100
  <!--This variable will hold the value of entered rate divided by 100 to get the
  percentage //-->
  var Investment=InvestAmount
  <!-- This variable will contain the investment amount //-->
  return Investment * Irate
  <!-- compute the investment amount and return the answer to the calculate investment
  function //-->
  }

function returncalc(InvestAmount,InvestRateB) {
  var Irate=InvestRateB/100
  var Investment=InvestAmount
  return Investment * Irate
  }
  //--> <!-- Close comment //-->
<FORM Name="InvestCalc">

<TABLE>

<TR>
<TD>Amount of Investment:</TD>
<TD><INPUT Type="text" Name="Amount" value="" Size="9"></TD>
</TR>

<TR>
<TD>Interest Rate as % (e.g. 7.9) - Bank A:</TD>
<TD><INPUT Type="text" Name="RateA" value="" Size="9"></TD>
</TR>

<TR>
<TD>Interest Rate as % (e.g. 7.9) - Bank B:</TD>
<TD><INPUT Type="text" Name="RateB" value="" Size="9"></TD>
</TR>

<TR>
<TD>Investment Return Bank A:</TD>
<TD><INPUT Type="text" Name="ReturnA" value="" Size="12"></TD>
</TR>

<TR>
<TD>Investment Return Bank B:</TD>
<TD><INPUT Type="text" Name="ReturnB" value="" Size="12"></TD>
</TR>

<TR>
<TD><INPUT Type="Button" value="Calculate" onclick="CalculateInvestment(InvestCalc)"><!-- When the button is clicked the CalculateInvestment function is called, the value of the InvestCalc variable is transferred -->
</TD>
</TR>

<INPUT Type="Reset"></TD>
</TR>
</TABLE>

</FORM>

5.7 Test the Code
After you have entered the code and completed the debugging (Chapter 8 of the prescribed book) you must use the Markup Validation Service (Chapter 1 of the prescribed book) to ensure your Web pages are well formed and conforms to the specific DTD. Include screen dumps of your validation reports.

5.8 User Satisfaction Survey
Once you have totally debugged the Web site and validated all of the pages you are ready to conduct the user satisfaction survey. You need to compile a
document with questions based on the user specifications. Make another appointment with the manager/owner of the business, show him or her the final product and ask them to complete the user satisfaction survey. Questions that may be asked is whether the site fulfills their needs, are they satisfied with the layout of the site, are the graphics to their satisfaction, is it easy to navigate through the site etc.

5.9 Permission Letter
The manager/owner of the business must complete and sign the permission letter provided on the last page of this tutorial letter. If they apply the official stamp of the business on the letter you will earn full marks for this particular part of the project.

6. Completing the Project
The project must consist of the following:
1. Index
2. User requirement specifications
3. Site structure
4. Structural outline
5. Detailed sketch of Home Page
6. Logic design of Home Page
7. Complete code of Home Page
8. Screen shot of Home Page
9. Detailed sketch of Product/Service Information
10. Logic design of Product/Service Information
11. Complete code of Product/Service Information
12. Screen shot of Product/Service Information
13. Detailed sketch of Order Form
14. Logic design of Order Form
15. Complete code of Order Form
16. Screen shot of Order Form
17. Detailed sketch of Information Form
18. Logic design of Information Form
19. Complete code of Information Form
20. Screen shot of Information Form
21. User satisfaction form
22. Permission letter
23. Rubric

All these documents need to be bound together with a ring/coil binder. The first reason for the ring/coil binding is to ensure none of the pages are torn out or lost during the transition from the exam hall to the marker. The second reason is that these projects must be stored with the exam paper for the next 3 years, you can imagine what our store room will look like if almost 400
students submit arch lever files twice a year.

Do NOT put your project in an arch lever file, this makes it very difficult to store.

Each page you include in the document must have your student number in the top right corner. Do NOT place everything in an arch-lever file or any other method of binding as you need to attach your examination paper to your project. This is to ensure all documents stays securely together and making it easier for the markers to mark your project. Think of this as a project you are submitting to your employer or a portfolio you can submit to a potential employer, it needs to look professional and neat in order to make the correct impression.

7. Submitting the Project
You must take the printed and bound project with you the day you write your examination for this module. You will not be allowed to submit the project before or after the examination, it MUST be submitted at the examination venue on the day of your exam with your examination paper. Take a big paperclip or stapler with you the day of the exam and ensure your examination paper and project are attached to each other.

8. Marking Criteria
The following rubric will be used to mark the examination project. You should use this rubric as a checklist to ensure your project conforms to these specifications.
<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Range</th>
<th>Specific Outcomes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate a clear understanding of problem statements as stated by computer users in various industries.</td>
<td>Evidence shows that the learner read and understood the question as posed to him/her.</td>
<td>Case project website was created</td>
<td>0 = Web site does not conform to project specifications at all &lt;br&gt; 1 = Very limited conformation to project specifications &lt;br&gt; 2 = Limited conformation to project specifications &lt;br&gt; 4 = Exact conformation to project specifications &lt;br&gt; 5 = Additional development done from project specifications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project conveys professional image</td>
<td>0 = Pages dirty and edges folded &lt;br&gt; 1 = No order to structure of project &lt;br&gt; 2 = Ordered, no index, binding very untidy/in arch lever file &lt;br&gt; 3 = Ordered, index, bind very untidy/in arch lever file &lt;br&gt; 5 = Ordered, neat, index, ring binder or staple bound</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All information required is included</td>
<td>0 = None of the required documentation was included &lt;br&gt; 1 = No index, user requirements, user satisfaction included, site structure, structural outline, permission documentation &lt;br&gt; 2 = No index, user requirements, user satisfaction included, permission documentation &lt;br&gt; 3 = No index, user requirements, user satisfaction included, permission documentation &lt;br&gt; 4 = No index, permission documentation &lt;br&gt; 5 = All documentation stated to the left is included</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Index</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• User requirement specifications</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Site structure</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Structural outline</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Detailed sketch of Home Page</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Logic design of Home Page</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Complete code of Home Page</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Screen shot of Home Page</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Detailed sketch of Product/Service Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Logic design of Product/Service Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Complete code of Product/Service Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Screen shot of Product/Service Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Detailed sketch of Order Form</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Logic design of Order Form</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Complete code of Order Form</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Screen shot of Order Form</td>
<td></td>
</tr>
</tbody>
</table>
Evidence shows that the learner did the required planning

**Fundamental programming principles must be applied for development of a working computer based program**

**Project Proposal**
- Site title – specify the working title for the site
- Developer – Student had to identify him/her self
- Rationale or focus – Explain the content and goal of the site, such as billboard, customer support, catalog/e-commerce, informational, or resource.
- Main elements outline – Describe the main features of the site
- Content – What content is added to the web site
- Target audience – Describe the typical audience for the site
- Design considerations – List the design goals for the site
- Limiting factors – Identify the technical or audience factors that could limit the design goals of the site
- User specifications – List all the features the user wants you to incorporate in the website

**Evaluation**
- 0 = No Project Proposal was included
- 1 = 1/3 of the elements of the project proposal have been addressed with very limited descriptions
- 2 = 2/3 of the elements of the project proposal have been addressed with very limited descriptions
- 3 = all elements of the project proposal have been addressed with limited descriptions
- 4 = all elements of the project proposal have been addressed with adequate descriptions
- 5 = all elements of the project proposal have been addressed with more than sufficient descriptions
| Sketch of the page layout | 0 = No layout design  
1 = Pencil sketches with limited scope  
2 = Pencil sketches with adequate scope  
3 = Computer generated sketches with limited scope  
4 = Computer generated sketches with adequate scope  
5 = Computer generated sketches with advanced scope |
|-----------------------------------------------|
| Psuedocode | 0 = No logic design  
1 = Logic design do not correlate with code  
2 = Limited logic design  
3 = Adequate logic design  
5 = Advanced logic design |
| The object-oriented programming language should be implemented to development a solution specific and to the satisfaction of the client. | Evidence shows learner used JavaScript coding to obtain results |
| Correct syntax used | 0 = none of the W3C standards adhered to  
0 = If any indication that code was not written using text editor  
1= HTML syntax used  
2= XHTML syntax used  
3= Limited use of JavaScript coding  
5 = Adequate use of JavaScript coding  
7 = Advanced use of JavaScript coding |
| Sensible comments added to the code | 0 = No comments added  
0 = If any indication that code was not written using text editor  
1 = Comments do not add to functionality  
2 = Limited comments added  
4 = Adequate comments  
5 = Advanced comments |
| Markup Validation | 0 = No markup validation documentation included  
0 = If any indication that code was not written using text editor  
1 = Markup validation documentation included, but still contains errors  
3 = Markup validation documentation included with no errors indicated |
| Object-oriented program development tools must be applied for the development of a working computer based program | Evidence shows the learner implemented the code | Graphical User Interfaces and Object-Oriented design should be applied | 0 = No GUI elements included  
1 = GUI elements included but no actions linked to GUI’s  
3 = Text boxes, push buttons with actions  
5 = Text boxes, selection lists, selection boxes, radio buttons, push buttons with actions |
| --- | --- | --- | --- |
| User defined methods, classes and functions should be applied | 0 = No user defined functions  
3 = Limited user defined functions  
4 = Adequate user defined functions  
5 = Advanced user defined functions |
| Handling of exceptions should be understood and applied | 0 = No debugging or error handling  
3 = Limited debugging and error handling  
4 = Adequate debugging and error handling  
5 = Advanced debugging and error handling |
| Screen dumps are included | 0 = No screen dumps included  
0 = If any indication that code was not written using text editor  
1 = Screen dumps do not conform to code  
2 = Limited screen dumps provided  
3 = Adequate screen dumps provided  
5 = Screen dumps presented in relation to code |
I, _________________________________________, manager/owner of ________________________________ (name of business) hereby grant permission to __________________________________ (name of student) to create a website for our business as part of his/her examination for the module ICT1512 for which he/she is a registered student at the University of South Africa.

Business phone number: __________________________________

Business street address: __________________________________

_____________________________________________________

_____________________________________________________

The website, as created by the student, will remain the property of the business and the business may not be charged any fees for creating this website.

Any arrangement for the loading of the website onto the World Wide Web as well as the maintenance of the website once it is made public is between the student and the business and UNISA will not be held responsible in any way or manner.

_____________________________________________________

Owner

Student

_____________________________________________________

Date Signed

Student Number