

OLLSCOIL NA hÉIREANN  
THE NATIONAL UNIVERSITY OF IRELAND  
NATIONAL UNIVERSITY OF IRELAND, GALWAY

SEMESTER 2 EXAMINATIONS 2004

SECOND YEAR BA EXAMINATION

INFORMATION SYSTEMS II (CT244)

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S. Hughes

Time allowed: Two hours

Candidates are required to answer Question One in SECTION A  
and two other questions from SECTION B

### SECTION A

Q1. [i] Examine the following code:

- A. Explain the meaning of each of the numbered lines of code.
- B. Describe in detail the overall effect of the code.

```
<HTML>
<HEAD>
    <TITLE>Question 1</TITLE>
</HEAD>
<SCRIPT LANGUAGE=JAVASCRIPT TYPE="TEXT/JAVASCRIPT">
    <!-- Hide script from older browsers

1.)    function myfunction(myvalue) {
2.)        invalidChars = "/:;, "
3.)        if (myvalue == "") {
4.)            return false
5.)        }
6.)        for (i=0; i<invalidChars.length; i++) {
7.)            badChar = invalidChars.charAt(i)
8.)            if (myvalue.indexOf(badChar,0) > -1) {
9.)                return false
10.)            }
11.)        }
12.)        atPos = myvalue.indexOf("@",1)
13.)        if (atPos == -1) {
14.)            return false
15.)        }
16.)        if (myvalue.indexOf("@",atPos+1) > -1) {
17.)            return false
18.)        }
19.)        periodPos = myvalue.indexOf(".",atPos)
20.)        if (periodPos == -1) {
21.)            return false
22.)        }
23.)        if (periodPos+3 > myvalue.length) {
24.)            return false
25.)        }
26.)        return true
27.)    }
```

[18 Marks]

[ii] Create a HTML registration form that allows the user to enter in a username, password and email address. Using the scripting language of your choice insert this data into a table called "Customers" in a database called MyDB.

Create a Login form that prompts the user for their username and password. Using the scripting language of your choice querying MyDB. If the data is correct the user is directed to order.html. If the data does not match the user is directed to the registration page or given the option of trying again.

[22 Marks]

### SECTION B

- Q2. [i] Write notes on two of the following topics illustrating your response with examples where appropriate:

- Management Information Systems
- Underlying principles of Systems Development
- Gantt Charts

[15 Marks]

- [ii] Outline in detail the main steps of the Systems development life Cycle in order to produce a clear requirements specification.

[15 Marks]

- Q3. [i] In relation to the internet, discuss the problems associated with each of the following:

- Information Overload
- DNS names
- Security and Control

[6 Marks]

- [ii] Images can be included on a web site in various formats. Name the different image formats. When and why should you use each? State the advantages and disadvantages of each.

[4 Marks]

- [iii] "We are in the Age of Knowledge. The phrases "knowledge is power" and "content is king" are often used in reference to business conducted on the Internet".

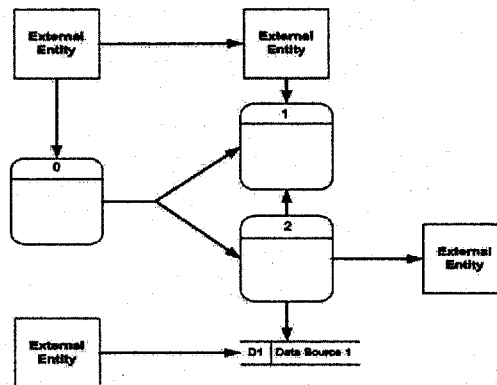
Discuss this statement, paying particular attention to potential benefits and problems, features that the sites can include, the basic components of an E-commerce environment (with diagram) and technologies that could be used.

[20 Marks]

- Q4. [i] Describe how processing modeling techniques might be used at various stages of the systems development life cycle.

[4 Marks]

- [ii] The following DFD contains four common errors. Find and describe each error, explaining why it should not occur in a properly designed system.



[8 Marks]

- [iii] Given the following narrative description, draw a context diagram and a system-level data flow diagram for the portion of the activities described. In your answer state any assumptions described.

"We handle the computer equipment repair requests for all of the departments of the company. Fundamentally, our system handles repair calls from any of these departments, looking up the history of the piece of equipment in question, assigning a repair person, and forwarding to the repair person the initial request and the equipment's history."

"Through an interactive (menu driven) software program, the service coordinator takes from the caller (a) the three digit department number, (b) the three digit initials of the caller, (c) the piece of equipment's seven digit serial number, and (d) the complaint, to which the coordinator assigns a single letter "complaint code", A through E. The coordinator assigns a unique digit "repair number" and adds (e) a datestamp, and (f) a timestamp (we probably should update how we do this, thanks to the Y2K issue). Once the coordinator validates the entry, the software does three things with this data: (1) it stores all of this repair request in the database, (2) it electronically sends the equipment serial number to a second program called EQUIPLOOKUP, and (3) it electronically also sends the repair request to a third program called ASSIGNREP."

"EQUIPLOOKUP uses the serial number to access the equipment's basic information -- the serial number, the equipment's name (up to forty characters in length), the equipment model (up to twelve characters in length), a two digit age (or 'UN' if unknown), the department number, a four digit room number -- and its repair history, which is made up of zero or more lines, each of which captures one repair call for that piece of equipment during the last twelve months. A line consists of the (a) repair number, (b) the date completed, (c) the time completed, (d) the initial complaint code, (e) a diagnosis code (a single

digit, a value from 1 to 5), and (f) the repairperson's three letter initials. This program outputs this equipment information, the basic information, and repair history, to a temporary file.

"ASSIGNREP assigns the repairperson to the call by accessing some portion of the database to get the data for an available repairperson (his or her unique three character initials, and a four digit computer account number), and, when it determines that EQUIPLOOKUP has written its output to the temporary file, reads that file, and creates an output that consists of all the equipment information. This is combined with the repair request and the whole thing is mailed (electronically) to the repair person's computer account."

[18 Marks]