Virtual University	Assignment No. 04 (Solution) SEMESTER Fall 2011 CS507- Information Systems	Total Marks: 10 Due Date: 12/01/2011

Instructions

Please read the following instructions carefully before solving & submitting assignment:

Due Date:

Your assignment must be uploaded/submitted before or on **12th January 2012.**

Uploading instructions:

Please view the **Assignment Submission Process** document provided to you by the Virtual University for uploading assignments.

- Your assignment must be in .doc format.(Any other formats like scan images, PDF, Zip, rar, bmp, docx etc will not be accepted)
- Save your assignment with your ID (e.g. bc020200786.doc).
- No assignment will be accepted through email.

Rules for Marking:

It should be clear that your assignment will not get any credit if:

- The assignment is submitted after due date.
- The submitted assignment does not open or file is corrupted.
- Your assignment is copied from internet, handouts or from any other student (Strict disciplinary action will be taken in this case).

Note:

- Your answer must follow the below given specifications. Marks will be deducted if you do not follow these instructions.
  - Font style: "Times New Roman"
  - Font color: "Black"
  - Font size: "12"
  - **Bold** for heading only.
  - Font in *Italic* is not allowed at all.

- You should consult recommended books to clarify your concepts.
- It's better for you to submit the assignment well before the deadline.
- Do not put any query at MDB about this assignment, if you have any query then email at **CS507@vu.edu.pk**

Marks: 10

Read the given research paper thoroughly and answer the following questions.

Q.1 What are the problems that system engineers face while designing a secure information system? [5 marks]

Answer:

There are at least two reasons for the lack of support for security engineering.

Firstly security requirements are generally difficult to analyze and model. A major problem in analyzing non-functional requirements is that there is a need to separate functional and non-functional requirements yet, at the same time, individual nonfunctional requirements may relate to one or more functional requirements. If the nonfunctional requirements are stated separately from the functional requirements, it is sometimes difficult to see the correspondence between them. If stated with the functional requirements, it may be difficult to separate functional and non-functional considerations.
Secondly developers lack expertise for secure software development. Many developers, who are not security specialists, must develop systems that require security features. Without an appropriate methodology to guide those developers on the development processes, it is likely that they will fail to produce effective solutions.

Q2. How security vulnerabilities can be over come by using the technique presented by the authors?

Answer:

The main contribution of this paper is the introduction of a process that integrates security and systems engineering, using the same concepts and notations, in the entire system development process. This process is characterized by five key ideas.
Firstly by considering the overall software development process it is easy to identify security requirements at the early requirements stage and propagate them until the implementation stage. This introduces a security-oriented paradigm to the software engineering process.
Secondly, Security is defined in different levels of complexity, which allows the software engineer a better understanding while advancing through the process.
Thirdly, iteration allows the redefinition of security requirements in different levels therefore providing a better integration with system functionality. Fourthly, consideration of the organizational environment facilitates the understanding of the security needs in terms of the security policy.
In addition, functional and non-functional requirements are defined together however a clear distinction is provided.