INTRODUCTION

Numerous server-side handheld applications are available for devices. Some popular applications include:

- *Instant messages*, which require service providers to relay the messages,
- *Mobile web content*, which consists of web content that can be viewed via handheld devices and can be implemented using markup languages such as HTML, WML, cHTML, and DIAL,
- *On-line games*, which are video games playable on the Internet that allow remote players to play the games together, and
- *Telephony*, which is the most common operation performed by smartphone users and requires the telecommunication company to provide the service.

Among the various mobile applications, mobile web content is the most popular application and this chapter will be devoted to a detailed consideration of the construction of database-driven mobile web content. The term “handheld programming” is used here to refer to mobile-commerce programming for Internet-enabled mobile handheld devices, which requires various programming and markup languages and
utilities. As in previous chapters, the concepts involved in handheld programming are illustrated using a case study, in this case the construction of a B2C, mobile, online video-game store.

A database-driven mobile web site is often implemented using a three-tiered client-server architecture consisting, as the name suggests, of three layers:

1. **User interface**: This runs on a mobile handheld device (the client) and uses a standard graphical user interface (GUI).
2. **Function module**: This level actually processes data and may consist of one or more separate modules running on a workstation or an application server. This tier may be multi-tiered itself, in which case the overall architecture is called an n-tier architecture.
3. **Database management system (DBMS)**: A DBMS on a host computer stores the data required by the middle tier.

The three-tier design offers many advantages over traditional two-tier or single-tier designs, the chief one being that the modular structure makes it easier to modify or replace one tier without affecting the others. Figure 9.1 shows a generalized system structure of database-driven mobile web sites. Note that web and database servers are not hardware; they are the processes running on host computers that manage web pages and databases, respectively.

Many approaches can be used to create a database-driven mobile web site; the following list suggests the construction steps for a typical approach:

1. system setup,
2. database design and implementation,

**Figure 9.1. A generalized system structure of database-driven mobile web content**
An Approach to Faulty Reader Detection in RFID Reader Network
Hairulnizam Mahdin and Jemal H. Abawajy (2012). *Internet and Distributed Computing Advancements: Theoretical Frameworks and Practical Applications* (pp. 70-84).

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