Chapter 18: App programming and its use in smart buildings

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Abstract
App start-up companies require little overhead and investment to create apps that are profitable. Successful apps require people, both managers and developers, a deep understanding of software engineering. This chapter will focus on the many aspects of software engineering for creating apps for smart building management systems. Readers will get an overview of the many different issues to consider when developing apps and what some of the problems are to avoid. We will discuss the types of apps that can be considered for creation and discuss how they are used. This chapter serves as a primer to understanding apps and app development.

Keywords: software, apps, human-computer, interaction, HCI, software development, software engineering, smart building
Chapter Outline

18.1 Introduction
   - Motivating app start-ups
   - From building automation to smart buildings
   - Remaining chapter organization

18.2 Types of apps
   - General building system anatomy
   - Native Apps
   - Cloud Apps
   - Web Apps
   - Dashboard Apps
   - Ambient Devices
   - Agent Apps
   - Other issues to consider

18.3 Methodologies for creating apps
   - Creating apps using evolutionary delivery
   - Frontend and backend app development
   - How to collect and store data
   - Ubiquitous sensor platforms and IoT
   - App development environments

18.4 Conclusions
References


Ware, C (2008). *Visual Thinking for Design*, Morgan Kaufmann, Burlington, MA, USA.

Part One provides an introduction to the concept of smart, eco-efficient built environments and their significance in modern urban development. Part Two presents the latest research findings on nano and bio-based technologies and their application and use to the energy efficiency of the built environment. Part Three focuses on the use of genetic algorithms, Big Data, and the Internet of Things applications. Finally, the book ends with an entire section dedicated to App development using selected case studies that illustrate their application and use for monitoring building energy-efficiency.