

# Preface

The basic aim of the Semantic Web is to create a layer on the existing Web enabling advanced automatic processing of the web-content that further allows the sharing and processing of data by both humans and software. Semantic Web Services can be defined as the self-sufficient, reusable software components that can be used to fulfill a particular task. In the real-life scenario, the client requirements cannot be satisfied using only the single service component. In such cases, service discovery and selection is used for selecting the most appropriate service components followed by the service composition for generating the aggregation of selected service components according to the requested task. Different types of approaches providing Semantic Web service composition are available in the literature. In this book, we are mainly concerned with the agent-based Semantic Web service composition. Multiagent-based Semantic Web service composition is based upon the argument that a multiagent system can be considered as a service composition system, in which different involved agents represent the different individual services. The service is considered as an intelligent agent capability implemented as a self-contained software component. The book has been organized as follows. [Chapter 1](#) provides a brief introduction to some of the basic topics related to Semantic Web such as Web, Semantic Web services, Semantic Web service composition, ontology etc. In [Chap. 2](#), a general introduction to the terms agents, multiagent systems, and negotiation has been given. [Chapter 3](#) discusses the basics of agent-based service composition. An overview of some of the multiagent-based Semantic Web service composition approaches available in the literature has also been given. The chapter also presents models for agent-based Semantic Web service composition basically varying on the use of a coordinator agent in the composition process. A brief overview of a service selection model providing formalization of various Quality of Service (QoS) parameters and cognitive parameters of agent for selecting the most appropriate service provider agent has also been presented. In [Chap. 4](#), initially a brief discussion of the multi-attribute negotiation and an overview of some of the available multi-attribute negotiation approaches has been given. An agent-based, utility-based, multi-attribute negotiation approach providing negotiation between

semantic Web services has been described in detail. Finally, in [Chap. 5](#), we have proposed a negotiation-agreements-based Semantic Web service selection and composition approach. A mathematical model providing multi-attribute negotiation-based service selection using evaluation of negotiation-agreements has also been proposed. I am hopeful that the book will not only provide a good introductory reference but will also give the reader a breadth and depth of this topic. All feedbacks are welcome at [sandeepkumargarg@gmail.com](mailto:sandeepkumargarg@gmail.com).

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