

Human Capital Systems, Analytics and Data Mining:

A Technical Guide for Human Capital Practitioners and Analysts with Pay Equity and Job Mobility Research Based on Jobs of Comparable Worth

Preface

The purpose of this book is to provide the Human Capital Professional, Researcher and Student and comprehensive and portable guide to Human Capital Systems, Analytics and Data Mining. The emphasis in this book is to provide a portable set of tools for Human Capital Systems Analysis, Analytics and Data Mining that can be used with any combination of commercial and internally developed Human Capital Management Applications.

Emphasis will be on tools and software that is either open source or low in acquisition cost that can be easily deployed for use with the book. Book is designed for use in University courses and in private and public organizations regardless of what ever combination of commercial and internally developed systems are encountered in Human Capital Management with regard to developing Analytics and Data Mining Models needed for research and analysis.

Essentially the main purpose of this book is to provide a rich tool set of methods and tutorials for Human Capital Management Systems Database Modeling, Analytics, Interactive Dashboards and Data Mining that is independent of any Human Capital Software Vendor offerings and is equally usable and portable among both commercial and internally developed Human Capital Management Systems.

Chapters Three through Five use sample fictional HCMS data in regard to Database Modeling and initial Dashboard design. Beginning with Chapter 6 and through the remainder of the book the Fedscope Employment Database that contains over two million Federal Employee statistical records (without any private identifying information) are used in Original Gender Pay Equity and

Mobility Research in the context of a Comparable Worth framework. The research is presented in a Tutorial environment along with Research Conclusions. In addition, downloadable analytical OLAP Multidimensional Database, Pivot Charts and Data Mining Project solutions enabling the full experience are provided in running the Analytics while skipping the Tutorial Project steps. This approach allows for exciting knowledge discovery using Online Analytical Processing (OLAP) and Data Mining Tools through replication of actual Original Pay Equity Research by the Author contained in the book with actual Federal Employee Employment databases. Some of the findings may be controversial, but all are based on actual data from one of the largest employee databases available to the public for analytics.

The book is designed for use by Human Capital Managers and Analysts, Compensation Specialists, EEO Analysts and Labor Management Non-Statisticians, Researchers and Data

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Scientists alike. Undergraduate or Graduate Human Capital Management Students would

benefit from prior courses in Human Capital Management, Compensation and Benefits Administration and Talent Management. Programming and Statistical backgrounds are not required to use this book however at least intermediate expertise in Business Office Software such as Excel is highly recommended along with an introductory knowledge level in Basic Descriptive and Inferential Statistics. Knowledge of basic and intermediate Structured Query Language (SQL) is highly recommended.

Relational and Dimensional Database Management Concepts and Principles are included in Chapters Two through Four.

Software used in the Tutorials include -

- Oracle SQL Developer Data Modeler (Free download)
- SQL Server 2017 Database and Analytical Services Developer Edition (Free download)
- Microsoft Excel Full Version (2016 or higher recommended)
- Microsoft Power BI Desktop (Free download)
- Microsoft SQL Server Management Studio (free download)
- ProjectLibre Project Management Software - Open Source version ((Free download)
- Visual Studio 2017 Community Edition with Multidimensional Model Data Access (Free download)
- Installation of Oracle SQL Developer Data Modeler, SQL Server 2016/2017 Developer Edition, Microsoft Power BI Desktop and Visual Studio 2017 Community Edition are discussed with hands-on Tutorials where appropriate in Chapters where first used in a Tutorial Format.

Other software and systems reference in the book include those listed below.

- Microsoft Project
- OMF Job and Competency Analysis System (ictcw.com)
- ProjectLibre Project Management Software (projectlibre.com)

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