Abstract

An appropriate cost metrics for estimating development effort of the database part of an application at conceptual design stage using ER model is an important consideration. We propose four cost metrics based on the level of complexity of an ER diagram. Our effort estimation technique is based on these metrics using an empirical mathematical expression.
Early Estimation of Back-End Software Development Effort

which is capable to predict total database complexity efficiently. Again, its outcome shows that
the developmental effort is directly proportional to the total entity complexity and its total
database complexity.

Reference

- Yuan Zhao, and Hee Beng Kuan Tan, Wei Zhang, Software Cost Estimation through
  Conceptual Requirement, Third International Conference On Quality Software (QSIC’03), 2003
  IEEE, pp.141
- B. Londeix, Cost Estimation for Software Development, STC Telecommunications, UK,
- Ramez Elmasri, S. B. Navathe. D VLN Somayajulu, S.K Gupta, Fundamentals of
- Capers Jones, Estimating Software Costs, Bringing Realism to estimation, 2nd Edition,
  TMH 2007.
- Geoffrey J. Kennedy, Elementary structures in entity-relationship diagrams: a new metric
  for effort estimation, 1996 IEEE, pp. 86-92
- B. W. Boehm, C. Abts, A. W. Brown, S. Chulani, B. K. Clark, E. Horowitz, R. Madachy, D.
- Narayan S. Umanath, Richard W. Scamell, Data Modeling and Database Design,
- Emilia Mendes, Nile Mosley, Steve Counsell, Web Effort Estimation, Web Engineering,
- Samaresh Mishra, P.K. Pattnaik, Rajib Mall, A Novel Effort Estimation Model for Data
  Centric Software, National Conference on Embedded System, Current Issues and Applications,
- Mile Pavlic, Marin Kaluza, Neven Vrcek: Database complexity measuring method,
- Marcela Genero, Luis Jiménez, and Mario Piattini Measuring the Quality of Entity
  Relationship Diagrams, A.H.F. Laender, S.W. Liddle, V.C. Storey (Eds.): ER2000 Conference,
  LNCS 1920, pp. 513-526, 200(843,288),(984,293)
  Springer-Verlag Berlin Heidelberg 2000
- P. P. Chen, The Entity-Relationship model – towards a Unified View of Data, ACM Trans,
  Database Syst,1(1), Mar. 1976, pp. 9-36
- Parastoo Mohagheghi, Bente Anda, Reidar Conradi, Effort Estimation of Use Cases for
  Incremental Large-Scale Software Development, ICSE’05, May 15–21, 2005, ACM
  1-58113-963-2/05/000.
  McGRAW HILL Publication. pp-234.
- Samaresh Mishra, Krushna Chandra Tripathy, Manoj Kumar Mishra, Effort Estimation
  Based on Complexity and Size of Relational Database System, International Journal of
- Koh, T.W., M.H. Selamat and A.A.A. Ghani, Exponential effort estimation model using
  unadjusted function points, Information Technology Journal, 2008, Volume: 7, Issue: 6, pp
  830-839.
- Jianfeng Wen, Shixian Li, Linyan Tang, Improve Analogy-Based Software Effort

**Index Terms**

Computer Science  
Software Engineering

**Key words**

Entity Complexity  
Relationship complexity

Constraints

Depth of Inheritance

Effort estimation