Chapter 3
Project Teamwork Assessment and Success Rate Prediction Through Meta-Heuristic Algorithms

Soumen Mukherjee
RCC Institute of Information Technology, India

Arup Kumar Bhattacharjee
RCC Institute of Information Technology, India

Arpan Deyasi
RCC Institute of Information Technology, India

ABSTRACT

In this chapter, machine learning algorithms along with association rule analysis are applied to measure how the project teamwork success rate depends on various technical and soft skill factors of a software project. A real-life dataset is taken form UCI archive on project teamwork, which comprises of 84 features or attributes with 64 samples. The most effective feature set is therefore selected using meta-heuristic algorithms (i.e., particle swarm optimization [PSO] and simulated annealing [SA]) and then the data are given to support vector machine (SVM) and k-nearest neighbor (KNN) classifier for classification. Association rule mining is also used for rule generation among the different features of software project team to determine support and confidence. This chapter deals with how the project-based learning helps to manifest the students towards professionalism.

DOI: 10.4018/978-1-5225-7784-3.ch003

INTRODUCTION

In present era of technology teaching and learning, Management Information System(MIS) plays a vital role in assessing and implementing the knowledge transition process through different activities implemented beyond the classroom barrier, basically by means of two newly coined pedagogic methodologies, activity learning and flipped learning. Discovery of knowledge about all the stakeholders of the Institute is one of the primary requirements for their successful transition from student to corporate professionals, and thus representation of knowledge in structured forms are essential. This process can be implemented once the concept of teaching and learning will be deviated from the traditional teacher-centric approach to learner-centric approach through incorporation of projects in the curriculum, which is one of the principal requirements of Outcome Based Education (OBE) from the perspective of present engineering teaching and learning; prescribed by Bloom's Taxonomy (Gog, 2016). If the reader can devour h(is/er) mindset from the teacher-centric attitude, then it can be revealed that the MIS will play vital role in shaping the future of the students considering the present radical change in socio-humanitarian categorization based on newly emerging financial classification; which modifies the concept of classroom teaching. In twenty-first century, learning resources are become available truly outside the barriers of the bricks, through the World Wide Web (www) (Antonis *et al*, 2011). While implementation fo activity learning is not totally dependent on the web connection all the time, but more precisely, depends on the skill and thinking capabilities of the young minds; but flipped learning methodology is totally dependent on high-speed web connections in uninterrupted form at the time of preparation beyond class and before class. Teaching is now become a challenging task, where continuously changing academic and industrial requirements generates a new branch of research sector, may be termed as pedagogic principles. Individual assessments are partially replaced by group work's activity, and Think-Pair-Share (TPS) methodology (Pradana *et al*, 2017; Lee *et al*, 2018; Afthina *et al*, 2017) becomes one of the responsive methods of activity learning (McGrath &MacEwan, 2011; Khan *et al*, 2012) or flipped learning (Zainuddin & Halili, 2016; Karabulut-Ilgu *et al*, 2018; Guan, 2016) methodologies. Since both the learning technologies required group-based activities, so communication skill within the group plays the critical role in measuring success of the MIS, and simultaneously, information policy o the organization. In this context, system analysis gives the vital information about assessing the teamwork, formed while solving the project tasks assigned, and several meta-heuristic algorithms are required for feature selection; while machine learning algorithms are used for classification purpose.

Industry always demands the end-user product development, and ability of a person to be hired or to be with the changing dynamics can be better judged by