Component-based Software Engineering (CBSE) is a method which features the development of software applications or systems by utilizing the reusable components of a software. It has primarily come into existence as object-oriented development has failed to provide effective reusable options.

CBSE is a vital topic because it has various advantages such as minimized expenditures, reduction in development time, improved productivity and maintainability. Also, the components of the system can interact using their interfaces alone, and due to this the local details are encapsulated which is an added advantage. However, there is a challenge involved as searching an efficient component out of all the available store of components is a time taking process.

In this Literature review we will be discussing about various formal component selection techniques in existence, such as COTS(Component-off-the-shelf) Analytic Hierarchy Process (AHP), Weighted Scoring Method (WSM), and Hybrid Knowledge Based System (HKBS), the challenges and the faults associated with those methods. We would also be discussing few new techniques to efficiently select the software components in a CBSE based environment using Code metrics, Fuzzy clustering, Risk Identification, Automation based techniques. We would be discussing about algorithms for each of the above-mentioned techniques and how they are efficient when compared to the existing component selection methods. The outcome of our research would help developers to get a deeper understanding of the efficient component selection techniques so that they can work on the components independently probably in small teams, reducing the development time and improving the productivity.

References


