

Applying the framework of Turing machine developing system for implementing Java virtual machine

Heh-Tyan Liaw*, Ay-Hwa Andy Liou and Shang Huang
Department of Information Management, Tamkang University, Taiwan, R.O.C.

Abstract. The Turing machine can be used for rigorous study of the computation theory. In theory the Turing machine can simulate modern computers, but the actual implementation would be very difficult. This paper proposes a framework of Turing machine developing system. This developing system has been used successfully to implement a special Turing machine that is capable of executing Java bytecode. Demonstrations of this paper have shown the effectiveness of adopting the Turing machine for practical computation. In addition, the developing system can be applied to demonstrate the principle and concept of Turing machines.

Keywords: Turing machine, Java virtual machine, GUI, computation theory