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Manufacturing supported by business rule-based simulation

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Nowadays, the use of rule-based systems are widespread in software which require frequent changes at runtime.In these object-oriented systems, operations are being made on objects. These operations are called "rules" which are "if-then-else" statements and are behave like "if-then-else" statements in classical programming languages. Its most considerable advantage is flexibility. These rules can be easily changed or modified at runtime without rebuilding or redeploying the software.

To try out these rule-based management systems (*BRMS*), I took part in a project to develop a system that could predict what needs to be constructed in IBM DSS' factory at Vác. The system has sub-modules. All these modules are being developed separately from each other. There is a predictor module that could calculate what needs to be constructed in the next quarter to meet the needs of the customers with the less additional tasks to be done in the factory. These calculations based on the experiences of the past years. There is an optimization module in the system which optimizes the predictors output. The optimization creates a schedule for the whole quarter. The aim of the simulator module is to simulate the schedule given by the optimization to determine whether it could be kept as the schedule of the factory or it gave back something that is unacceptable. My task was to get some experience in IBM ILOG JRules BRMS while creating the basis of the scheduler module. Because the factory's manufacturing process is quite unique, I wasn't able to use a previously made simulator.

IBM WebSphere ILOG JRules provides functionality to build and deploy rule-based applications for Java, mainframe and SOA-based environments. In this semester I had to use only a subset of JRules' functionality. First of all, JRules Rule Studio is an Eclipse plug-in that could create rule projects, and run them by defining the object model of the rules. Rule Execution Server(*res*) is a built-in application server, which could be used to deploy previously created rule projects. Rule Team Server access to *res* and gives the opportunity to change or modify and then test rules to determine whether they are acceptable or not.