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UNIVERSITÄT LINZ**

Master's Thesis

**Analysing Raw Process Dumps as Managed Java and .NET Dumps**

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Dynatrace strives for delivering a high-quality product through monitoring via the *OneAgent*. Since the *OneAgent* is injected in almost all processes of their customer's machines, a process crash is automatically reported to Dynatrace and proactively and semi-automatically analysed without customer interaction. These so-called Crash Alerts contain process meta-data, stacks of faulting threads (decoded according to the definition of the technology, e.g., Java, .NET, ...) and even a raw dump of the process memory. The process dump can be loaded into a native debugger, but if the fault lies in the managed code (i.e., Java, .NET), it is almost impossible to analyze.

The goal of this thesis is to build a framework to decode raw process dumps into managed dumps so that, for example, memory leak analyses can be performed. It should be integrated as a separate reusable component into Dynatrace's *SuperDump*, which is currently used to analyze Crash Alerts.

The framework should be extensible so that it is easy to add support for new JVMs or other technologies in a declarative fashion. As proof of concept, the thesis should provide two implementations, one for the most recent .NET CLR, and one for the most recent Java LTS version. Finally, both the performance as well as the ease of extensibility must be evaluated extensively.

The progress of the thesis should be discussed on regular basis with the supervisors. A time schedule with milestones must be presented 3 weeks after the work starts. This schedule will be continuously refined as the work progresses. The final thesis should be submitted not later than September 30, 2021.

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