Garbage collection algorithms II
Abstract of presentation

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The subject of this paper is to compare specific garbage collection algorithms. There are presented two basic methods of garbage collection: Generational collection and Incremental collection.

Generational collection is a basic approach, implying that the newly created objects are more likely to die than objects still reachable after many collections. This approach leads to dividing the heap into generations, differentiated by the age (number of garbage collections) of objects. In this paper, it is presented, how individual objects are divided into the generations and possible ways to avoid searching all previous generations, when objects are pointing into them. This includes: Remembered list, Remembered set, Card marking, Page marking.

In real-time applications, it is necessary to use a specific type of garbage collectors. This type of garbage collector is called Incremental collection. It consists of two parallel parts: Mutator and Collector. These parts are in charge of markings and collecting of shared objects. First part explains how Mutator is marking from-space heap and moving objects to to-space heap processed by collector. In the second part, it is explained how Collector processes objects and how garbage collection is done.

In the summary of these approaches in garbage collection the Baker's algorithm is described, due to the fact that Baker's algorithm illustrates the details of incremental collection and is highly compatible with Generational collection.