PROFILING OF OBJECTS FOR PRETENURING

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Algorithm Overview

- Potential Pretenure Object set – PPTobj

  1. alive at the end of the program
  2. has survived at least two collections

Pretenure at a Particular Allocation Point p

- For all objects allocated at p, if greater than given percentage of them are in PPTobj, then directly allocated them into tenure space (oldest generation)

How To Collect This Information...Profiling

To mark an object that has been allocated a point p, we need

- Object Information
  - Type of Object (Multi-D array, Scalar Array, Obj Array, Non-array)
  - Allocation Address
- Allocation Point Information
  - Class Name
  - Method Name
  - Method Signature
  - Program Counter

How To Collect This Information...Profling [cont]

Profiling in the Virtual Machine

- Allocation Phase
    - Obtain Object and Method information
- Collection phase
    - Obtain new addresses and generations collected

PostProcessing

Obtain useful statistics from the profiling

- Program written in Java to:
  - Simulate memory management to obtain results
  - Hashtables track movements of objects
  - As a result of updating these hashtables, objects meeting the criteria of PPTobj are recorded.

Results Calculated from Benchmark JBYTEmark

GC No.	Objects Collected
0	45077
1	2956
2	67
3	1
4	24
5	6
6	33
7	27
8	12
9	4
10	1
12	26
14	23
17	7
20 21 23	1
28	2
30	14