

Testing task for Keen Software House s.r.o.

Position: Senior Game Programmer

A game programmer testing task by Petr Minarik, Prague, June 8, 2017

Required tools:

[Visual Studio 2017 Community Edition \(free\)](#)

Background:

When you compile and run the testing task, you'll see a simple 2D game simulation. There's a red spaceship and orange asteroids. The simulation is running quite slow and the ship is bad at shooting asteroids. The task is to optimize it, so it runs smoothly, improve ship targeting and implement a function for collision testing. The simulation runs for 60 seconds and calculates score, processing time and memory allocations.

Part 1: Optimizations

- Find out performance bottlenecks and improve the performance
- Fix excessive memory allocations done during the run

Part 2: Targeting

- Fix ship targeting to destroy as many asteroids as possible and reach highest score
- Stationary asteroid scores 1 point, moving is for 10 points

Part 3: Collision testing method

- Implement 'World.PreciseCollision' method
- This method is not necessary for actual test run, it's evaluated when the test run completes

Task evaluation:

- Minimum results to be your task considered as done (Release without debugging, CTRL+F5):
Hit ratio: >90%
GC Collected: <10MB
Processing time: <1000 ms
Score: >300
Precise collision accuracy: 100%
Precise collision time: <50 ms
Query accuracy: 100%
- When you're done, pack all source files into zip archive and send it by email to your contact for evaluation, email must contain results from the run to quickly see how the candidate performed.
- Results are automatically copied to clipboard at the end of the run. The code should be clean with no hacks (consider game logic being run on server)
- Ship trajectory is deterministic for the purpose of the test, but you're not allowed to do any optimizations based on future ship path, asteroid positions or world size.

- You can't add new references to TestingTask, but you can use anything from VRage engine
- 3rd party classes can be used as well, but you have to include them as source code.

If you have any questions, don't hesitate to ask for clarification. Good luck!

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