CHANGELOG

P2: BATTLESIMULATOR

GROEP 42:

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Changes & implementaties

- Added intel's TBB & OpenCL for GPGPU
- Some fixes like these
  - **FIXED** Local variable smoke hides `a global variable` with the same name. *Game.cpp*
  - **FIXED**This memory may have been allocated with `'new[]'`, not 'new'. *Surface.cpp*
- Draw calls rewritten to use TBB's parallel_for()
- Smokes, Explosions and particle beam rewritten to use TBB's parallel_for()
- Double linked list grid added for collision *"grid.h & grid.cpp"*
  - also, a quad tree alternative is added but its slower and commented out
  - Epic Defeat by Grid GPGPU on 31/1/2020 23:13:09 R.I.P Dante
- Grid used for rocket collision *"grid.h & grid.cpp"*
- Quad tree used to find closest enemy *"quadtree.h & quadtree.cpp"*
- "Bucket sort" added for health sort but later replaced with "count sort" since its faster
  - Bucket sort added and commented out
  - Counting sort added and used

Worst Cases	Time Complexity	Space Complexity
Bucket Sort	$O(n^2)$	$O(n)$
Counting Sort	$O(n+k)$	$O(n)$
Double linked list Grid	$O(n)/O(1)$	$O(n)$
Array Based Grid (GPGPU)	$O(n)/O(1)$	$O(n)$
Quad Tree	$O(\log n)$	$O(n)$