

How to **not** write a Starcraft build simulator.

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```

map<EntityType, vector<EntityType>> BuildOrder::dependencies = {
    {ZERG_OVERSEER, {ZERG_LAIR, ZERG_EXTRACTOR}},
    {ZERG_SPORE_CRAWLER, {ZERG_EVOLUTION_CHAMBER}},
    {ZERG_QUEEN, {ZERG_SPAWNING_POOL}},
    {ZERG_ZERGLING, {ZERG_SPAWNING_POOL}},
    {ZERG_LAIR, {ZERG_SPAWNING_POOL, ZERG_HATCHERY, ZERG_EXTRACTOR}},
    {ZERG_SPAWNING_POOL, {ZERG_HATCHERY}},
    {ZERG_SPINE_CRAWLER, {ZERG_SPAWNING_POOL}},
    {ZERG_ROACH_WARREN, {ZERG_SPAWNING_POOL}},
    {ZERG_BANELING_NEST, {ZERG_SPAWNING_POOL, ZERG_EXTRACTOR}},
    {ZERG_HYDRALISK_DEN, {ZERG_LAIR, ZERG_EXTRACTOR}},
    {ZERG_INFESTATION_PIT, {ZERG_LAIR, ZERG_EXTRACTOR}},
    {ZERG_EVOLUTION_CHAMBER, {ZERG_HATCHERY}},
    {ZERG_ROACH, {ZERG_ROACH_WARREN, ZERG_EXTRACTOR}},
    {ZERG_BANELING, {ZERG_BANELING_NEST, ZERG_ZERGLING, ZERG_EXTRACTOR}},
    {ZERG_HYDRALISK, {ZERG_HYDRALISK_DEN}},
    {ZERG_NYDUS_NETWORK, {ZERG_LAIR, ZERG_EXTRACTOR}},
    {ZERG_ULTRALIK_CAVERN, {ZERG_HIVE, ZERG_EXTRACTOR}},
    {ZERG_HIVE, {ZERG_LAIR, ZERG_INFESTATION_PIT, ZERG_EXTRACTOR}},
    {ZERG_INFESTOR, {ZERG_INFESTATION_PIT, ZERG_EXTRACTOR}},
    {ZERG_SPIRE, {ZERG_LAIR, ZERG_EXTRACTOR}},
    {ZERG_NYDUS_WORM, {ZERG_NYDUS_NETWORK, ZERG_EXTRACTOR}},
    {ZERG_ULTRALISK, {ZERG_ULTRALIK_CAVERN, ZERG_EXTRACTOR}},
    {ZERG_GREATER_SPIRE, {ZERG_HIVE, ZERG_SPIRE, ZERG_EXTRACTOR}},
    {ZERG_BROOD_LORD, {ZERG_GREATER_SPIRE, ZERG_CORRUPTOR, ZERG_EXTRACTOR}},
    {ZERG_CORRUPTOR, {ZERG_SPIRE, ZERG_EXTRACTOR}},
    {ZERG_MUTALISK, {ZERG_SPIRE, ZERG_EXTRACTOR}},
    {PROTOSS_ZEALOT, {PROTOSS_GATEWAY}},
    {PROTOSS_STALKER, {PROTOSS_GATEWAY, PROTOSS_ASSIMILATOR, PROTOSS_CYBERNETICS_CORE}},
    {PROTOSS_SENTRY, {PROTOSS_GATEWAY, PROTOSS_ASSIMILATOR, PROTOSS_CYBERNETICS_CORE}},
    {PROTOSS_WARP_PRISM, {PROTOSS_ROBOTICS_FACILITY}},
    {PROTOSS_IMMORTAL, {PROTOSS_ROBOTICS_FACILITY, PROTOSS_ASSIMILATOR}},
    {PROTOSS_OBSERVER, {PROTOSS_ROBOTICS_FACILITY, PROTOSS_ASSIMILATOR}},
    {PROTOSS_COLOSSUS, {PROTOSS_ROBOTICS_BAY, PROTOSS_ROBOTICS_FACILITY, PROTOSS_ASSIMILATOR}},
    {PROTOSS_GATEWAY, {PROTOSS_NEXUS, PROTOSS_PYLON}},
    {PROTOSS_CYBERNETICS_CORE, {PROTOSS_GATEWAY}},
    {PROTOSS_ROBOTICS_FACILITY, {PROTOSS_CYBERNETICS_CORE, PROTOSS_ASSIMILATOR}},
    {PROTOSS_ROBOTICS_BAY, {PROTOSS_ROBOTICS_FACILITY, PROTOSS_ASSIMILATOR}},
    {PROTOSS_HIGH_TEMPLAR, {PROTOSS_TEMPLAR_ARCHIVES, PROTOSS_GATEWAY, PROTOSS_ASSIMILATOR}},
    {PROTOSS_TEMPLAR_ARCHIVES, {PROTOSS_TWILIGHT_COUNCIL, PROTOSS_ASSIMILATOR}},
    {PROTOSS_TWILIGHT_COUNCIL, {PROTOSS_CYBERNETICS_CORE, PROTOSS_ASSIMILATOR}},
    {PROTOSS_DARK_TEMPLAR, {PROTOSS_DARK_SHRINE, PROTOSS_GATEWAY, PROTOSS_ASSIMILATOR}},
    {PROTOSS_DARK_SHRINE, {PROTOSS_TWILIGHT_COUNCIL, PROTOSS_ASSIMILATOR}},
    {PROTOSS_STARGATE, {PROTOSS_CYBERNETICS_CORE, PROTOSS_ASSIMILATOR}},
    {PROTOSS_MOTHERSHIP, {PROTOSS_NEXUS, PROTOSS_ASSIMILATOR, PROTOSS_FLEET_BEACON}},
    {PROTOSS_FLEET_BEACON, {PROTOSS_STARGATE, PROTOSS_ASSIMILATOR}},
    {PROTOSS_FORGE, {PROTOSS_PYLON, PROTOSS_NEXUS}},
    {PROTOSS_PHOTON_CANNON, {PROTOSS_FORGE}},
    {PROTOSS_PHOENIX, {PROTOSS_STARGATE, PROTOSS_ASSIMILATOR}},
    {PROTOSS_VOID_RAY, {PROTOSS_STARGATE, PROTOSS_ASSIMILATOR}},
    {PROTOSS_CARRIER, {PROTOSS_FLEET_BEACON, PROTOSS_STARGATE, PROTOSS_ASSIMILATOR}},
    {PROTOSS_PROBE, {PROTOSS_NEXUS}},
    {TERRAN_PLANETARY_FORTRESS, {TERRAN_ENGINEERING_BAY, TERRAN_COMMAND_CENTER, TERRAN_REFINERY}},
    {TERRAN_MISSILE_TURRET, {TERRAN_ENGINEERING_BAY}},
    {TERRAN_SENSOR_TOWER, {TERRAN_ENGINEERING_BAY, TERRAN_REFINERY}},
    {TERRAN_MARINE, {TERRAN_BARRACKS}},
    {TERRAN_BARRACKS_TECH_LAB, {TERRAN_BARRACKS, TERRAN_REFINERY}},

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map<EntityType, int> BuildOrder::supply = {
    {ZERG_DRONE, 1},
    {ZERG_OVERLORD, -8},
    {ZERG_SPAWNING_POOL, -1},
    {ZERG_HATCHERY, 2},
    {ZERG_EXTRACTOR, -1},
    {ZERG_OVERSEER, 0},
    {ZERG_SPORE_CRAWLER, -1},
    {ZERG_QUEEN, 2},
    {ZERG_ZERGLING, 1},
    {ZERG_LAIR, 0},
    {ZERG_SPINE_CRAWLER, -1},
    {ZERG_ROACH_WARREN, -1},
    {ZERG_BANELING_NEST, -1},
    {ZERG_HYDRALISK_DEN, -1},
    {ZERG_INFESTATION_PIT, -1},
    {ZERG_ROACH, 2},
    {ZERG_BANELING, 1},
    {ZERG_HYDRALISK, 2},
    {ZERG_NYDUS_NETWORK, -1},
    {ZERG_ULTRALIK_CAVERN, -1},
    {ZERG_INFESTOR, 2},
    {ZERG_SPIRE, -1},
    {ZERG_NYDUS_WORM, 0},
    {ZERG_ULTRALISK, 6},
    {ZERG_GREATER_SPIRE, 0},
    {ZERG_BROOD_LORD, 2},
    {ZERG_CORRUPTOR, 2},
    {ZERG_MUTALISK, 2},
    {PROTOSS_PYLON, -8},
    {PROTOSS_NEXUS, -10},
    {PROTOSS_PROBE, 1},
    {PROTOSS_ZEALOT, 2},
    {PROTOSS_STALKER, 2},
    {PROTOSS_SENTRY, 2},
    {PROTOSS_WARP_PRISM, 2},
    {PROTOSS_IMMORTAL, 4},
    {PROTOSS_OBSERVER, 1},
    {PROTOSS_COLOSSUS, 6},
    {PROTOSS_GATEWAY, 0},
    {PROTOSS_CYBERNETICS_CORE, 0},
    {PROTOSS_ROBOTICS_FACILITY, 0},
    {PROTOSS_ROBOTICS_BAY, 0},
    {PROTOSS_HIGH_TEMPLAR, 2},

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    {PROTOSS_HIGH_TEMPLAR, 2},
    {PROTOSS_TEMPLAR_ARCHIVES, 0},
    {PROTOSS_TWILIGHT_COUNCIL, 0},
    {PROTOSS_DARK_TEMPLAR, 2},
    {PROTOSS_DARK_SHRINE, 0},
    {PROTOSS_STARGATE, 0},
    {PROTOSS_MOTHERSHIP, 8},
    {PROTOSS_FLEET_BEACON, 0},
    {PROTOSS_FORGE, 0},
    {PROTOSS_PHOTON_CANNON, 0},
    {PROTOSS_PHOENIX, 2},
    {PROTOSS_VOID_RAY, 3},
    {PROTOSS_CARRIER, 6},
    {TERRAN_SCV, 1},
    {TERRAN_COMMAND_CENTER, -11},
    {TERRAN_SUPPLY_DEPOT, -8},
    {TERRAN_PLANETARY_FORTRESS, 0},
    {TERRAN_MISSILE_TURRET, 0},
    {TERRAN_SENSOR_TOWER, 0},
    {TERRAN_MARINE, 1},
    {TERRAN_BARRACKS_TECH_LAB, 0},
    {TERRAN_MARAUDER, 2},
    {TERRAN_REAPER, 1},
    {TERRAN_GHOST, 2},
    {TERRAN_BARRACKS_REACTOR, 0},
    {TERRAN_FACTORY, 0},
    {TERRAN_FACTORY_TECH_LAB, 0},
    {TERRAN_FACTORY_REACTOR, 0},
    {TERRAN_SIEGE_TANK, 3},
    {TERRAN_THOR, 6},
    {TERRAN_HELLION, 2},
    {TERRAN_BUNKER, 0},
    {TERRAN_GHOST_ACADEMY, 0},
    {TERRAN_STARPORT, 0},
    {TERRAN_MEDIVAC, 2},
    {TERRAN_VIKING, 2},
    {TERRAN_FUSION_CORE, 0},
    {TERRAN_STARPORT_TECH_LAB, 0},
    {TERRAN_STARPORT_REACTOR, 0},
    {TERRAN_RAVEN, 2},
    {TERRAN_BATTLECRUISER, 6},
    {TERRAN_BANSHEE, 3}

```

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};
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```

map<string, EntityType> BuildStep::stringToEntityType = {
    {"refinery", TERRAN_REFINERY},
    {"supply_depot", TERRAN_SUPPLY_DEPOT},
    {"barracks", TERRAN_BARRACKS},
    {"barracks_tech_lab", TERRAN_BARRACKS_TECH_LAB},
    {"barracks_reactor", TERRAN_BARRACKS_REACTOR},
    {"marauder", TERRAN_MARAUDER},
    {"reaper", TERRAN_REAPER},
    {"ghost", TERRAN_GHOST},
    {"ghost_academy", TERRAN_GHOST_ACADEMY},
    {"bunker", TERRAN_BUNKER},
    {"hellion", TERRAN_HELLION},
    {"marine", TERRAN_MARINE},
    {"factory", TERRAN_FACTORY},
    {"factory_tech_lab", TERRAN_FACTORY_TECH_LAB},
    {"factory_reactor", TERRAN_FACTORY_REACTOR},
    {"starport", TERRAN_STARPORT},
    {"starport_tech_lab", TERRAN_STARPORT_TECH_LAB},
    {"starport_reactor", TERRAN_STARPORT_REACTOR},
    {"raven", TERRAN_RAVEN},
    {"banshee", TERRAN_BANSHEE},
    {"battlecruiser", TERRAN_BATTLECRUISER},
    {"fusion_core", TERRAN_FUSION_CORE},
    {"viking", TERRAN_VIKING},
    {"medivac", TERRAN_MEDIVAC},
    {"siege_tank", TERRAN_SIEGE_TANK},
    {"thor", TERRAN_THOR},
    {"armory", TERRAN_ARMORY},
    {"orbital_command", TERRAN_ORBITAL_COMMAND},
    {"command_center", TERRAN_COMMAND_CENTER},
    {"scv", TERRAN_SCV},
    {"engineering_bay", TERRAN_ENGINEERING_BAY},
    {"planetary_fortress", TERRAN_PLANETARY_FORTRESS},
    {"missile_turret", TERRAN_MISSILE_TURRET},
    {"sensor_tower", TERRAN_SENSOR_TOWER},
    {"assimilator", PROTOSS_ASSIMILATOR},
    {"forge", PROTOSS_FORGE},
    {"pylon", PROTOSS_PYLON},
    {"nexus", PROTOSS_NEXUS},
    {"photon_cannon", PROTOSS_PHOTON_CANNON},
    {"phoenix", PROTOSS_PHOENIX},
    {"void_ray", PROTOSS_VOID_RAY},
    {"carrier", PROTOSS_CARRIER},
    {"fleet_beacon", PROTOSS_FLEET_BEACON},
    {"dark_shrine", PROTOSS_DARK_SHRINE},
    {"templar_archives", PROTOSS_TEMPLAR_ARCHIVES},
    {"robotics_bay", PROTOSS_ROBOTICS_BAY},
    {"colossus", PROTOSS_COLOSSUS},

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    {"observer", PROTOSS_OBSERVER},
    {"immortal", PROTOSS_IMMORTAL},
    {"warp_prism", PROTOSS_WARP_PRISM},
    {"sentry", PROTOSS_SENTRY},
    {"stalker", PROTOSS_STALKER},
    {"zealot", PROTOSS_ZEALOT},
    {"probe", PROTOSS_PROBE},
    {"gateway", PROTOSS_GATEWAY},
    {"cybernetics_core", PROTOSS_CYBERNETICS_CORE},
    {"robotics_facility", PROTOSS_ROBOTICS_FACILITY},
    {"high_templar", PROTOSS_HIGH_TEMPLAR},
    {"dark_templar", PROTOSS_DARK_TEMPLAR},
    {"twilight_council", PROTOSS_TWILIGHT_COUNCIL},
    {"stargate", PROTOSS_STARGATE},
    {"archon", PROTOSS_ARCHON},
    {"mothership", PROTOSS_MOTHERSHIP},
    {"hatchery", ZERG_HATCHERY},
    {"evolution_chamber", ZERG_EVOLUTION_CHAMBER},
    {"crawler", ZERG_SPORE_CRAWLER},
    {"drone", ZERG_DRONE},
    {"queen", ZERG_QUEEN},
    {"lair", ZERG_LAIR},
    {"overseer", ZERG_OVERSEER},
    {"overlord", ZERG_OVERLORD},
    {"spawning_pool", ZERG_SPAWNING_POOL},
    {"spine_crawler", ZERG_SPINE_CRAWLER},
    {"roach_warren", ZERG_ROACH_WARREN},
    {"baneling_nest", ZERG_BANELING_NEST},
    {"extractor", ZERG_EXTRACTOR},
    {"zergling", ZERG_ZERGLING},
    {"roach", ZERG_ROACH},
    {"baneling", ZERG_BANELING},
    {"infestation_pit", ZERG_INFESTATION_PIT},
    {"infestor", ZERG_INFESTOR},
    {"hive", ZERG_HIVE},
    {"spire", ZERG_SPIRE},
    {"greater_spire", ZERG_GREATER_SPIRE},
    {"corruptor", ZERG_CORRUPTOR},
    {"mutalisk", ZERG_MUTALISK},
    {"brood_lord", ZERG_BROOD_LORD},
    {"ultralisk_cavern", ZERG_ULTRALISK_CAVERN},
    {"ultralisk", ZERG_ULTRALISK},
    {"nydus_worm", ZERG_NYDUS_WORM},
    {"nydus_network", ZERG_NYDUS_NETWORK},
    {"hydralisk_den", ZERG_HYDRALISK_DEN},
    {"hydralisk", ZERG_HYDRALISK},
};

```



```
map<string, BuildStepType> BuildStep::stringToBuildStepType = {
    {"assimilator", BuildStepType::PRODUCE},
    {"forge", BuildStepType::PRODUCE},
    {"pylon", BuildStepType::PRODUCE},
    {"nexus", BuildStepType::PRODUCE},
    {"photon_cannon", BuildStepType::PRODUCE},
    {"phoenix", BuildStepType::PRODUCE},
    {"void_ray", BuildStepType::PRODUCE},
    {"carrier", BuildStepType::PRODUCE},
    {"fleet_beacon", BuildStepType::PRODUCE},
    {"dark_shrine", BuildStepType::PRODUCE},
    {"templar_archives", BuildStepType::PRODUCE},
    {"robotics_bay", BuildStepType::PRODUCE},
    {"colossus", BuildStepType::PRODUCE},
    {"observer", BuildStepType::PRODUCE},
    {"immortal", BuildStepType::PRODUCE},
    {"warp_prism", BuildStepType::PRODUCE},
    {"sentry", BuildStepType::PRODUCE},
    {"stalker", BuildStepType::PRODUCE},
    {"zealot", BuildStepType::PRODUCE},
    {"probe", BuildStepType::PRODUCE},
    {"gateway", BuildStepType::PRODUCE},
    {"cybernetics_core", BuildStepType::PRODUCE},
    {"robotics_facility", BuildStepType::PRODUCE},
    {"high_templar", BuildStepType::PRODUCE},
    {"dark_templar", BuildStepType::PRODUCE},
    {"twilight_council", BuildStepType::PRODUCE},
    {"stargate", BuildStepType::PRODUCE},
    {"archon", BuildStepType::PRODUCE},
    {"mothership", BuildStepType::PRODUCE},
    {"refinery", BuildStepType::PRODUCE},
    {"supply_depot", BuildStepType::PRODUCE},
    {"barracks", BuildStepType::PRODUCE},
    {"barracks_tech_lab", BuildStepType::UPGRADE},
    {"barracks_reactor", BuildStepType::UPGRADE},
    {"marauder", BuildStepType::PRODUCE},
    {"reaper", BuildStepType::PRODUCE},
    {"ghost", BuildStepType::PRODUCE},
    {"ghost_academy", BuildStepType::PRODUCE},
    {"bunker", BuildStepType::PRODUCE},
    {"hellion", BuildStepType::PRODUCE},
    {"factory", BuildStepType::PRODUCE},
    {"factory_tech_lab", BuildStepType::UPGRADE},
    {"factory_reactor", BuildStepType::UPGRADE},
    {"starport", BuildStepType::PRODUCE},
```

```
    {"starport_tech_lab", BuildStepType::UPGRADE},
    {"starport_reactor", BuildStepType::UPGRADE},
    {"raven", BuildStepType::PRODUCE},
    {"banshee", BuildStepType::PRODUCE},
    {"battlecruiser", BuildStepType::PRODUCE},
    {"fusion_core", BuildStepType::PRODUCE},
    {"viking", BuildStepType::PRODUCE},
    {"medivac", BuildStepType::PRODUCE},
    {"siege_tank", BuildStepType::PRODUCE},
    {"thor", BuildStepType::PRODUCE},
    {"armory", BuildStepType::PRODUCE},
    {"orbital_command", BuildStepType::UPGRADE},
    {"command_center", BuildStepType::PRODUCE},
    {"engineering_bay", BuildStepType::PRODUCE},
    {"planetary_fortress", BuildStepType::UPGRADE},
    {"missile_turret", BuildStepType::PRODUCE},
    {"sensor_tower", BuildStepType::PRODUCE},
    {"marine", BuildStepType::PRODUCE},
    {"scv", BuildStepType::PRODUCE},
    {"hatchery", BuildStepType::PRODUCE},
    {"evolution_chamber", BuildStepType::UPGRADE},
    {"crawler", BuildStepType::UPGRADE},
    {"drone", BuildStepType::PRODUCE},
    {"queen", BuildStepType::PRODUCE},
    {"lair", BuildStepType::UPGRADE},
    {"overseer", BuildStepType::UPGRADE},
    {"overlord", BuildStepType::PRODUCE},
    {"spawning_pool", BuildStepType::UPGRADE},
    {"spine_crawler", BuildStepType::UPGRADE},
    {"roach_warren", BuildStepType::UPGRADE},
    {"baneling_nest", BuildStepType::UPGRADE},
    {"extractor", BuildStepType::UPGRADE},
    {"zergling", BuildStepType::PRODUCE},
    {"roach", BuildStepType::PRODUCE},
    {"baneling", BuildStepType::UPGRADE},
    {"infestation_pit", BuildStepType::UPGRADE},
    {"infestor", BuildStepType::PRODUCE},
    {"hive", BuildStepType::UPGRADE},
    {"spire", BuildStepType::UPGRADE},
    {"greater_spire", BuildStepType::UPGRADE},
    {"corruptor", BuildStepType::PRODUCE},
    {"mutalisk", BuildStepType::PRODUCE},
    {"brood_lord", BuildStepType::UPGRADE},
    {"ultralisk_cavern", BuildStepType::UPGRADE},
    {"ultralisk", BuildStepType::PRODUCE},
    {"nydus_worm", BuildStepType::UPGRADE},
    {"nydus_network", BuildStepType::UPGRADE},
    {"hydralisk_den", BuildStepType::UPGRADE},
    {"hydralisk", BuildStepType::PRODUCE},
```

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};
```

```

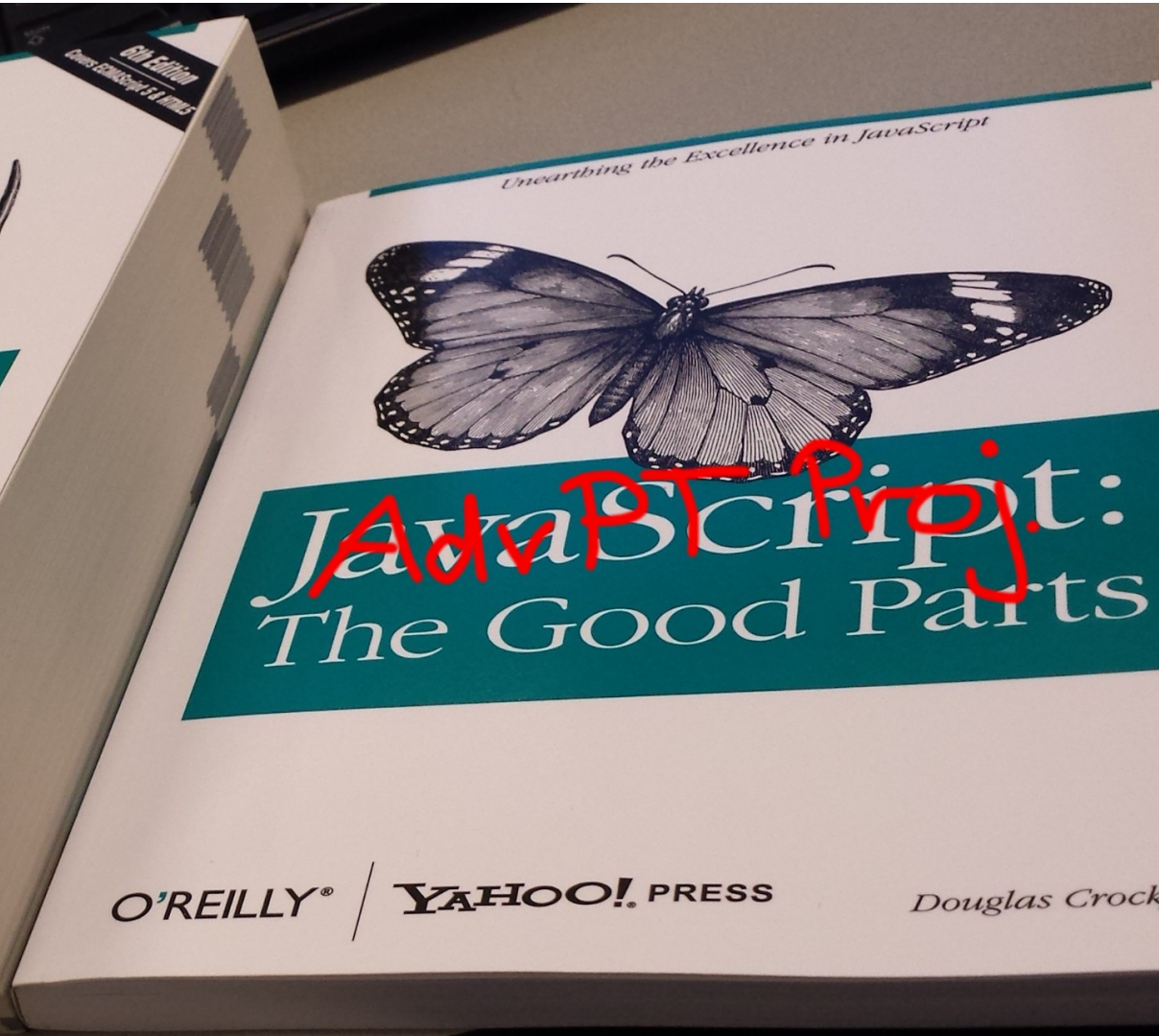
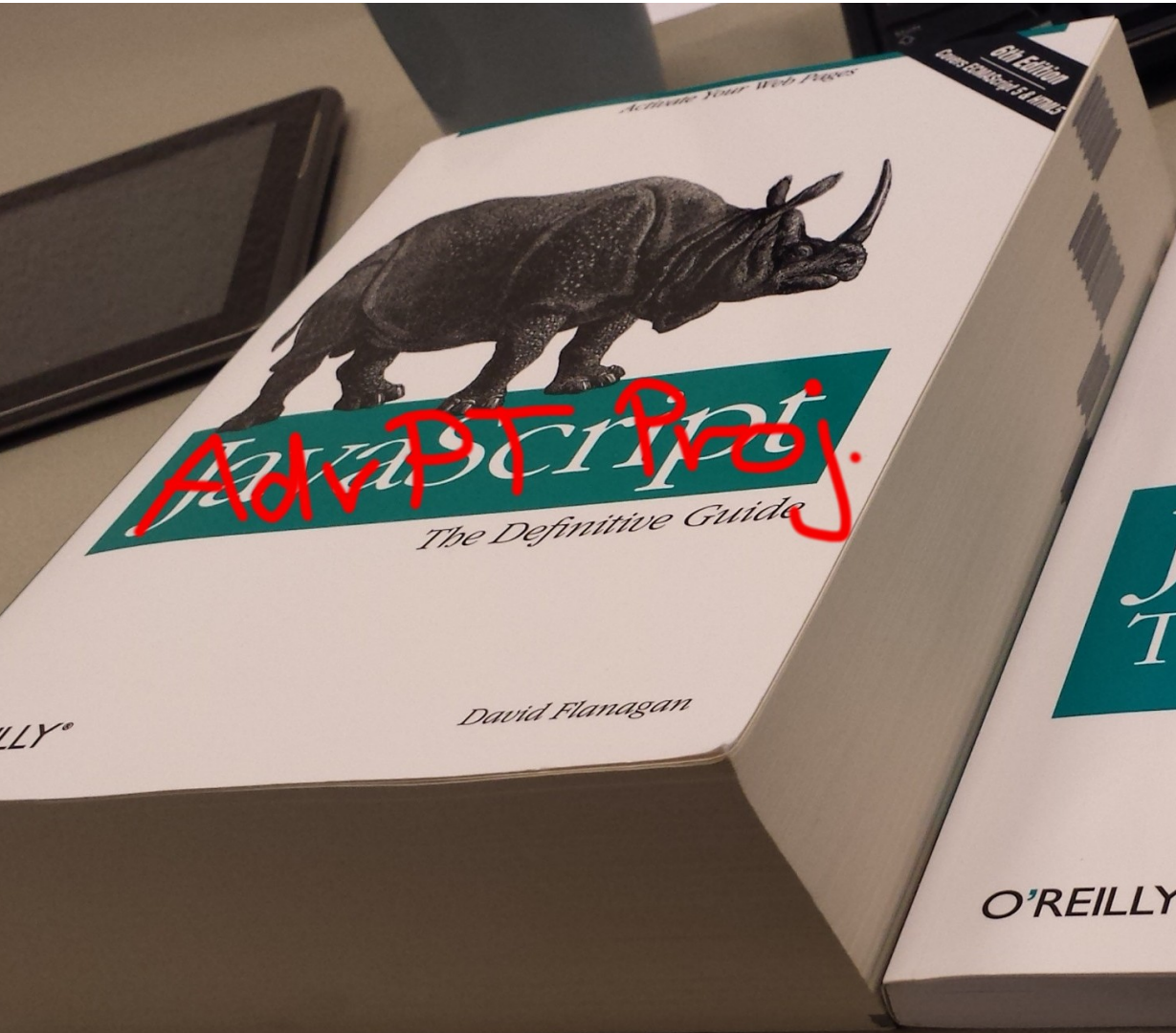
vector<string> GeneticOptimizer::Terran_Entities = {
    "refinery", "supply_depot", "barracks", "barracks_tech_lab", "barracks_reactor",
    "marauder", "reaper", "ghost", "ghost_academy", "bunker", "hellion",
    "marine", "factory", "factory_tech_lab", "factory_reactor", "starport",
    "starport_tech_lab", "starport_reactor", "raven", "banshee", "battlecruiser",
    "fusion_core", "viking", "medivac", "siege_tank", "thor", "armory", "orbital_command",
    "command_center", "scv", "engineering_bay", "planetary_fortress", "missile_turret",
    "sensor_tower"
};

vector<string> GeneticOptimizer::Protoss_Entities = {
    "assimilator", "forge", "pylon", "nexus", "photon_cannon", "phoenix", "void_ray", "carrier",
    "fleet_beacon", "dark_shrine", "templar_archives", "robotics_bay", "colossus",
    "observer", "immortal", "warp_prism", "sentry", "stalker", "zealot",
    "probe", "gateway", "cybernetics_core", "robotics_facility", "high_templar",
    "dark_templar", "twilight_council", "stargate", "archon", "mothership"
};

vector<string> GeneticOptimizer::Zerg_Entities = {
    "hatchery", "evolution_chamber", "crawler", "drone", "queen", "lair", "overseer", "overlord",
    "spawning_pool", "spine_crawler", "roach_warren", "baneling_nest", "extractor",
    "zergling", "roach", "baneling", "infestation_pit", "infestor", "hive",
    "spire", "greater_spire", "corruptor", "mutalisk", "brood_lord", "ultralisk_cavern",
    "ultralisk", "nydus_worm", "nydus_network", "hydralisk_den", "hydralisk"
};

std::map<string, string> entitiesWithPrerequisites = {
    {"planetary_fortress", "command_center"},
    {"orbital_command", "command_center"},
    {"starport_reactor", "starport"},
    {"factory_reactor", "factory"},
    {"starport_tech_lab", "starport"},
    {"barracks_tech_lab", "barracks"},
    {"barracks_reactor", "barracks"},
    {"factory_tech_lab", "factory"}
};

```

```
char *entity = "siege_tank";
const unsigned long noLists = 20000;
const unsigned long numberOfGenerations = 500;

// Create random build list
std::vector<pair<unsigned long, BuildOrder *>> *bList = generateRandomLists(noLists, entity);

// Iterate: rate and mutate
for (int gen = 0; gen < numberOfGenerations; gen++)
{
    // Calculates how much progress a certain buildList achieved.
    rateBuildLists(*bList);

    // Mutates using delete, add and change operations.
    // Mutates less fit build lists more often then better performing ones.
    mutateBuildLists(*bList, entity);
}
```


The End.

27. Jan 2015

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