Programming Assignment 1

Class Outline

By: Atchima Klomkaew

1. Simulation
   1. Private:
      1. numOffsprings : Int
         1. number of offspring – from user
      2. parent1 : Organism
         1. parent 1
      3. parent2 : Organism
         1. parent 2
      4. mate : Breed
         1. Breeds the two parents
      5. master : GeneMaster
         1. For OffspringReader to use the Gene definition
      6. readChildren : OffspringReader
         1. For reading the offsprings and counting
      7. parseFile : GeneticsSimDataParser
         1. For reading file
   2. Public:
      1. getNumOffspring()
         1. Get number of offspring
      2. setNumOffspring()
         1. Set number of offspring – from user
2. GeneMaster
   1. Private:
      1. GeneDef : Struct
         1. Contains definition of genes
         2. geneTrait : String
         3. domAllele : String
         4. domSymbol : Char
         5. recAllele : String
         6. recSymbol : Char
      2. geneHolder : Vector of Struct
         1. Container for all the genes that will be defined
   2. Public:
      1. isDomAllele()
         1. Returns true if the allele is dominant, otherwise false
      2. getGeneHolder()
         1. Returns the geneHolder
3. Organism
   1. Private:
      1. gene : Gene
      2. genotype : String
      3. genusName : String
      4. speciesName : String
      5. commonName : String
   2. Public:
      1. getGenotype()
      2. setGenotype()
      3. getGenusName()
      4. setGenusName()
      5. getCommonName()
      6. setCommonName()
4. Gene
   1. Private:
      1. geneTrait : String
      2. geneGenotype : String
   2. Public:
      1. getGeneTrait()
      2. setGeneTrait()
      3. getGeneGenotype()
      4. setGeneGenotype()
5. Breed
   1. Private:
      1. gene : Gene
      2. allele1 : String
         1. From parent 1
      3. allele2 : String
         1. From parent 2
      4. parent : Organism
      5. offspring : Vector of Gene
   2. Public:
      1. getProperGene()
      2. getOffspring()

1. OffspringReader
   1. Private:
      1. master : GeneMaster
      2. genoCount : Vector of Struct
      3. phenoCount : Vector of Struct
         1. domGeneCount : Int
         2. heteroGeneCount : Int
         3. recGeneCount : Int
      4. numOffsprings : Int
   2. Public:
      1. getPhenoCount()
      2. setPhenoCount()
      3. getGenoCount()
      4. setGenoCount()