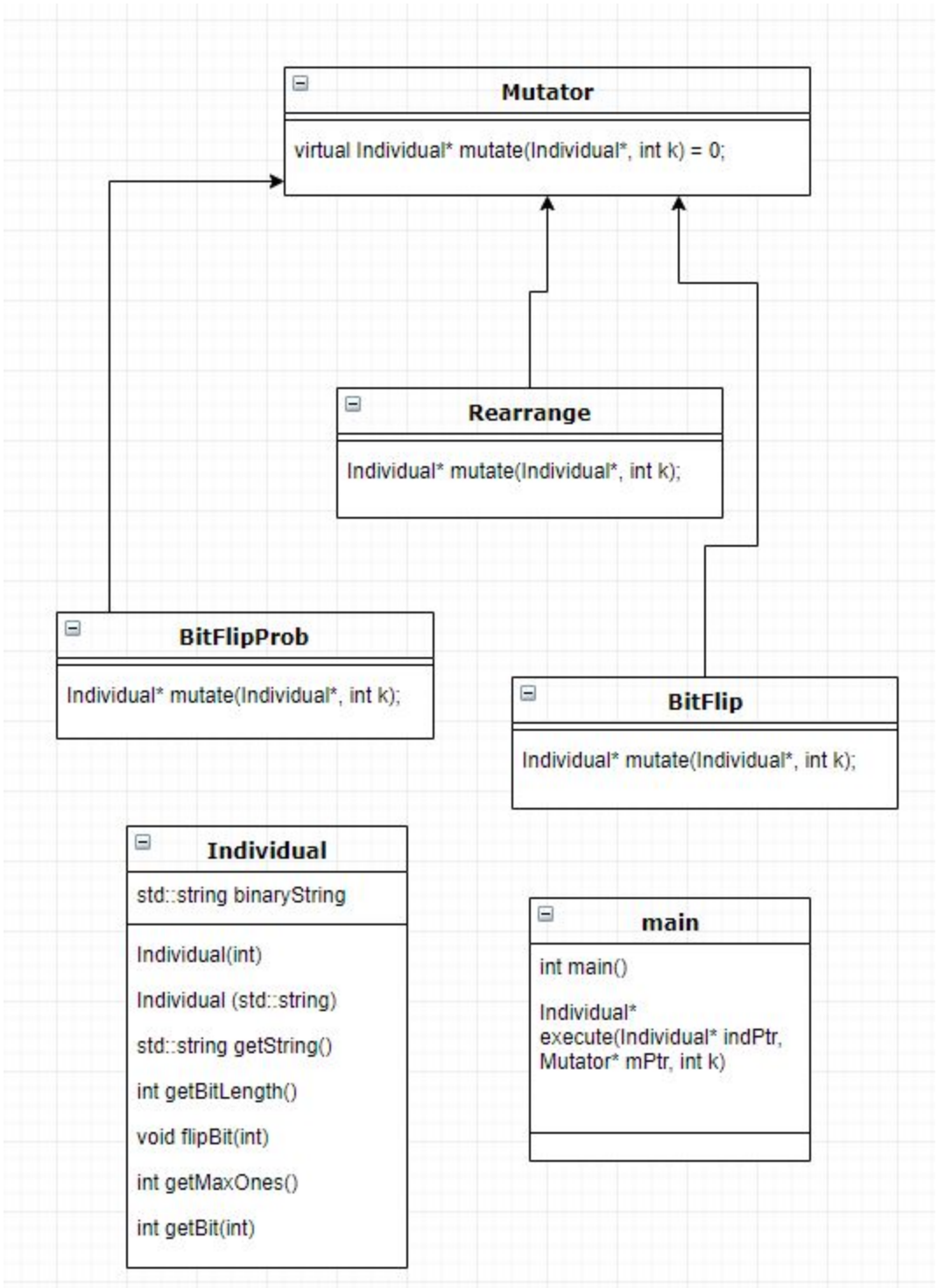
UML



Functions

int main(void);

Converts the input to variables using streamline.

Creates objects out of the the inputs.

Checks to see if the string is a string or int.

Uses execute function to modify the individuals.
Prints to console.

Individual* execute(Individual* indPtr, Mutator* mPtr, int k);
Applies the mutate function.

Individual(int);
Makes string of zeros where the length is the input.

Individual(std::string);
Makes another string with identical values.

std::string getString();
Gets binary string.

int getBit(int);
Gets the value of the string at the input index.

int getLength();
Gets t he length of the binary string

void flipBit(int);
Flips bit from zero to one or one to zero.
Makes a new string with the same values for every character at an index except the input.

int getMaxOnes();
Returns the longest string of ones in a row.
Loops over the length of the string and looks at every index. A temporary variable goes up one if it is a one and resets to zero if the value is zero. Another variable max takes the temporary value if it is bigger than max.

BitFlip: Individual* mutate(Individual*, int k);
Making another string with the same elements as the input string but changing the element of the input index indexOfChange.

Rearrange: Individual* mutate(Individual*, int k);
Moving the back chunk of the front and then adding the other chunk. Defining back and front chunk via the index.

BitFlipProb: Individual* mutate(Individual*, int k);
Looping over the string and swapping randomly
Making another string with the same elements as the input string but changing the element of the input index indexOfChange.

Test
Input: 12 12 1 2
Output: 000000000001 1 1

Input: 11 1 2 1
Output: 01 00 0

Input: 1010010101 100 10101 2
Output: 1010010100 01011 2

Input: 0101 1 0101 1
Output: 1101 0101 1

Input: 10101 12 1010 12
Output: 11101 0101 1

Input: 4 1 1111 1
Output: 1000 1111 4