# CS5401 FS2018 Assignment 1d

William Lorey
wwlytc@mst.edu

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## Introduction

Assignment 1d involved implementing a Multi-Objective Evolutionary Algorithm (MOEA) to more effectively solve Light Up puzzles by balancing the fulfillment of three objectives:

1. maximize the number of cells lit up (represented in this implementation as a ratio of lit cells to the total number of white cells)
2. minimize the number of bulbs shining on each other
3. minimize the number of black cell adjacency constraint violations

For BONUS #1, a fourth objective was added, namely minimizing the number of bulbs placed on the board.

This report outlines this solution's particular implementation of a MOEA, the impact of initialization strategies on the MOEA's performance, a comparison between parent selection, survival strategy, and survival selection strategies on MOEA performance, as well as the impact of increasing the number of objectives on non-domination and MOEA performance (BONUS #1).

## MOEA Overview

## Impact of Initialization on MOEA Performance

## Comparison of Parent Selection, Survival Strategy, and Survival Selection Strategies

## BONUS #1: Impact of Increasing Number of Objectives on Number of Non-Domination and MOEA Performance

TODO: need to create config files and run test for this