Curtis Kargus Time/Space analyses

Time O(n^2) Space O(n^2)

Matrix(int rows = 1, int cols = 1) : array(rows)

Time O(n^2) Space O(n^2)

void resize(int rows, int cols)

Time O(1) Space O(1)

const vector<Object> & operator[](int row) const

Time O(1) Space O(1)

vector<Object> & operator[](int row)

Time O(1) Space O(1)

int numrows() const

Time O(1) Space O(1)

int numcols() const

Time O(1) Space O(1)

LowestKeeper()

Time O(1) Space O(1)

LowestKeeper(int dis, string name)

Time O(1) Space O(1)

PokeStop(int location,string stop)

Time O(n) Space O(n)

PokeStop(const PokeStop & parent)

Time O(1) Space O(1)

bool operator < (const PokeStop & lhs) const

Time O(1) Space O(1)

void addLoction(int visited, string name)

Time O(1) Space O(1)

int GetLowerBound()

Time O(1) Space O(1)

int GetLowerBound()

Time O(1) Space O(1)

int GetCurrentDistance()

Time O(n) Space O(1)

void CalulateCurrentDistance(const Matrix<int> & matrix, PokeStop & temp)

Time O(n^3) Space O(n)

void CalulateLowerBound(const Matrix<int> & matrix, const vector<string> & key, PokeStop & stop)

Time O(n) Space O(n)

vector<int> GetVistitedLocations()

Time O(n) Space O(n)

vector<string> GetCurrentPoke()

Time O(n^4) Space O(n)

void Expand(priority\_queue<PokeStop> & queue, const Matrix<int> & matrix, const vector<string> & key, const vector<string> & uniqueKey, const vector<string> & fullCircleKey)

Time O(n^6) Space(n^2) n^2 was added to time

|  |  |  |  |
| --- | --- | --- | --- |
| Reason | Input | Expected Output | Actual Output |
| Sample test easy check to see if code is working properly. | 5  5 9 Eevee  10 10 Flareon  1 1 Flareon  1 8 Jolteon  2 8 Umbreon | 28 | 28 |
| Test the lower bound of the program | 1  5 5 Eevee | 20 | 20 |
| Test the upper bound of the program | 20  0 -10 A  0 -9 B  0 -8 C  0 -7 D  0 -6 E  0 -5 F  0 -4 G  0 -3 H  0 -2 I  0 -1 J  0 0 K  0 1 L  0 2 M  0 3 N  0 4 O  0 5 P  0 6 Q  0 7 R  0 8 S  0 9 T | 38 | 38 |
| Test to handle multiple duplicates | 4  5 5 A  10 10 A  5 -5 B  10 -10 B | 30 | 30 |