Curtis Kargus CIS 350

time analysis O(n) Space analysis **ϴ** (n^2)

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

time analysis O(n) Space Analysis **ϴ** (n^2)

void resize(int rows, int cols)

time analysis O(1) Space analysis **ϴ** (1)

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

time analysis O(1) Space analysis **ϴ** (1)

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

time analysis O(1) space analysis **ϴ** (1)

int numrows() const

time analysis O(1) space analysis **ϴ** (1)

int numcols() const

time analysis O(1) space analysis **ϴ** (n^2)

Graph(int size)

Time analysis O(n^2) space analysis **ϴ** (1)

void fillGraph()

time analysis O(n^2) space analysis **ϴ** (1)

void printGraph()

time analysis O(n^3) Space analysis **ϴ** (1)

int maxCover( const vector<char> & order)

time analysis O(n^2) space analysis **ϴ** (1)

int cover(char vertex, const vector<char> & order)

time analysis O(n) space analysis **ϴ** (n)

vector<char> ReturnKey()

time analysis O(g\*n^3\*n!) space analysis **ϴ** (g\*n^2) g being the number of graphs

int main()

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test number | Reason | Input | Expected output | Actual output |
| Test 1 | Input teacher gave us proves  if the basics of program work | 1 8 A 2 B F B 3 A G C C 2 B D D 3 C G E E 2 D H F 3 A G H G 3 B F D H 2 F E | A B C F G D H E 3 | A B C F G D H E 3 |
| Test 2 | Tests weather the program can calculate the cover  if no points were to be connected | 1 8 A 0  B 0  C 0  D 0  E 0  F 0  G 0  H 0 | A B C D E F G H 0 | A B C D E F G H 0 |
| Test 3 | Tests if program will run into an error is a column is totally filled | 1 8 A 7 B C D E F G H B 1 A C 1 A D 1 A E 1 A F 1 A G 1 A H 1 A | B C D A E F G H 4 | B C D A E F G H 4 |
| Test 4 | Tests if program can successfully handle many graphs | 3 8 A 2 B F B 3 A G C C 2 B D D 3 C G E E 2 D H F 3 A G H G 3 B F D H 2 F E 8 A 0  B 0  C 0  D 0  E 0  F 0  G 0  H 0 8 A 7 B C D E F G H B 1 A C 1 A D 1 A E 1 A F 1 A G 1 A H 1 A | A B C F G D H E 3 A B C D E F G H 0 B C D A E F G H 4 | A B C F G D H E 3 A B C D E F G H 0 B C D A E F G H 4 |