Title: Developing Agent Problems

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AIM :

Developing agent problems for real world problems.

PSEUDO CODE :

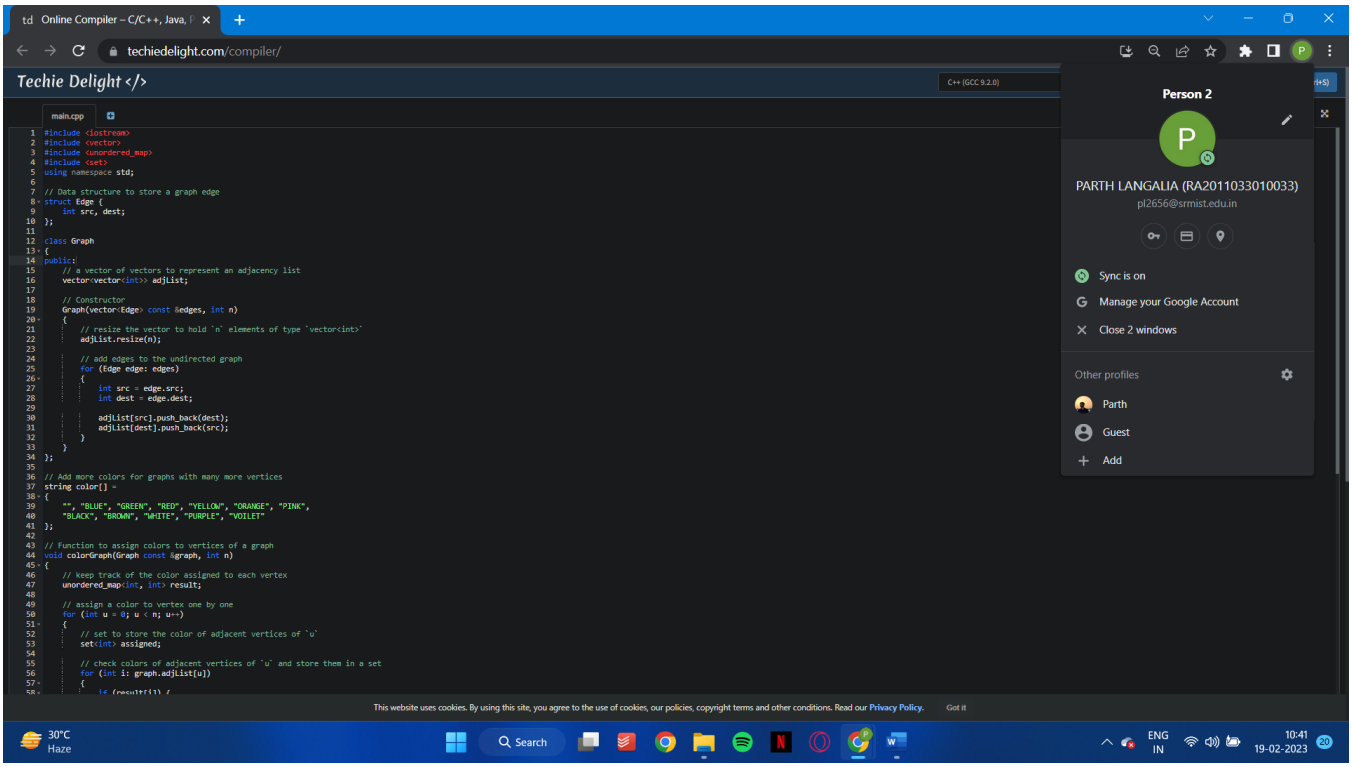
Initialize:

1. Color first vertex with first color.

Loop for remaining V-1 vertices.:

1. Consider the currently picked vertex and color it with the lowest numbered color that has not been used on any previously colored vertices adjacent to it.
2. If all previously used colors appear on vertices adjacent to v, assign a new color to it.
3. Repeat the following for all edges.
4. Index of color used is the chromatic number.

PROGRAM :


Online Compiler – C/C++, Java,
techiedelight.com/compiler/
Techie Delight </>
main.cpp
#include <iostream>
#include <vector>
#include <unordered_map>
#include <set>
using namespace std;
// Data structure to store a graph edge
struct Edge {
int src, dest;
};
class Graph
{
public:
// a vector of vectors to represent an adjacency list
vector<vector<int>> adjList;
// Constructor
Graph(vector<Edge> const &edges, int n)
{
// resize the vector to hold `n` elements of type `vector<int>`
adjList.resize(n);
// add edges to the undirected graph
for (Edge edge: edges)
{
int src = edge.src;
int dest = edge.dest;
adjList[src].push_back(dest);
adjList[dest].push_back(src);
}
}
};
// Add more colors for graphs with many more vertices
string color[] =
{
"", "BLUE", "GREEN", "RED", "YELLOW", "ORANGE", "PINK",
"BLACK", "BROWN", "WHITE", "PURPLE", "VIOLET"
};
// Function to assign colors to vertices of a graph
void colorGraph(Graph const &graph, int n)
{
// keep track of the color assigned to each vertex
unordered_map<int, int> result;
// assign a color to vertex one by one
for (int u = 0; u < n; u++)
{
// set to store the color of adjacent vertices of `u`
set<int> assigned;
// check colors of adjacent vertices of `u` and store them in a set
for (int i: graph.adjList[u])
{
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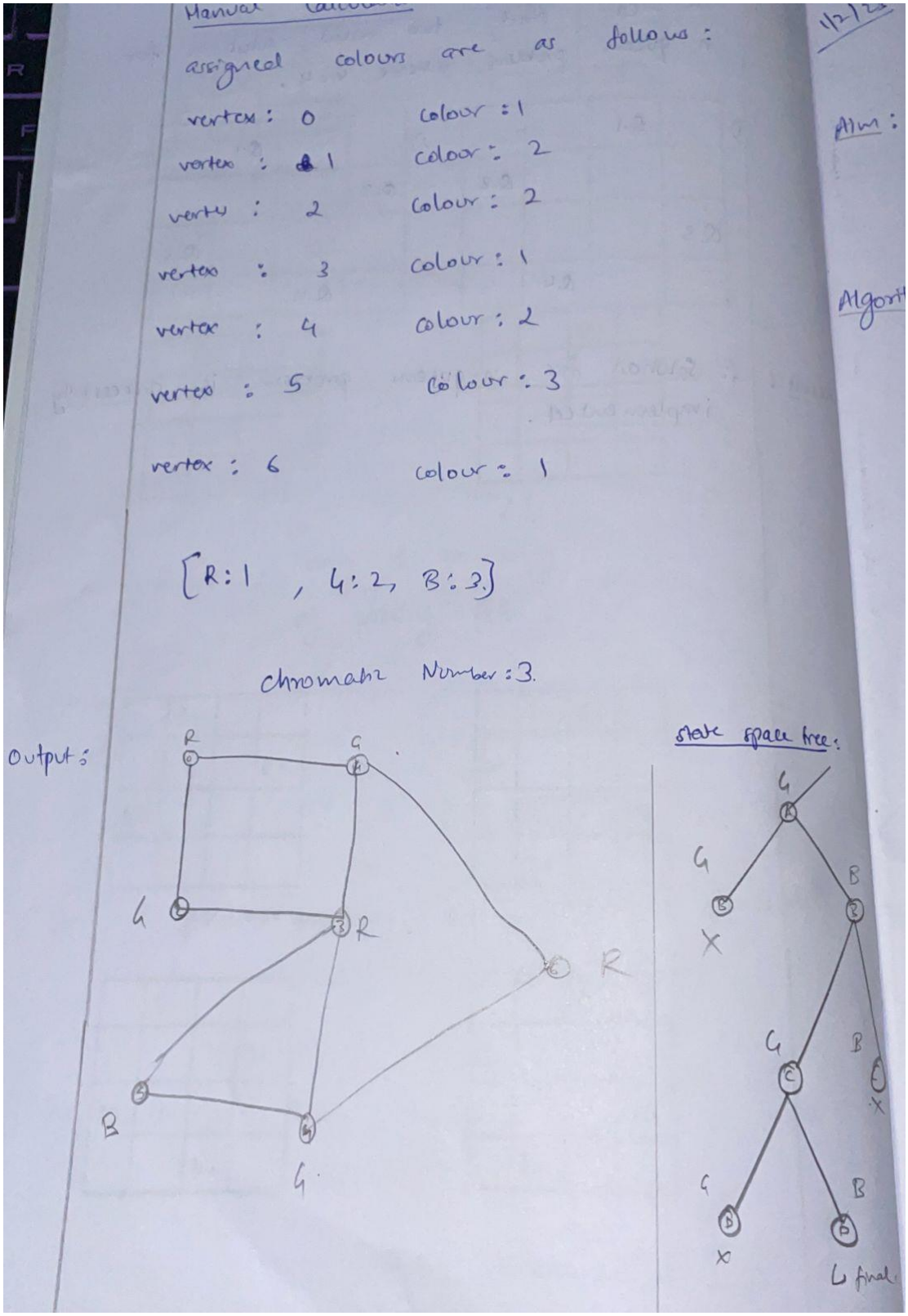
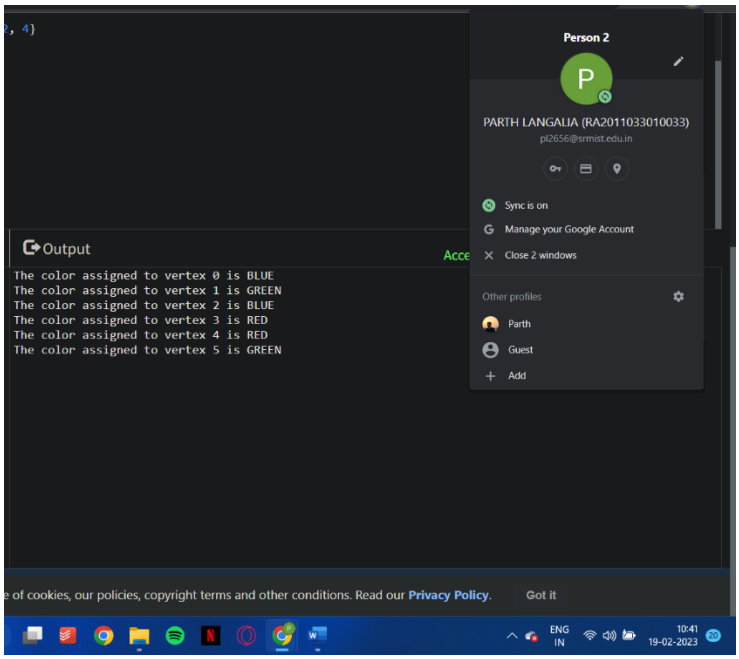
Sync is on
Manage your Google Account
Close 2 windows
Other profiles
Parth
Guest
Add
This website uses cookies. By using this site, you agree to the use of cookies, our policies, copyright terms and other conditions. Read our Privacy Policy.
Got it
30°C
Haze
Search
ENG
IN
10:41
19-02-2023

Manual Calculations :



OUTPUT :



RESULT :

Edge, vertex and face coloring problem which are together known as graph coloring problem solved and visualized in an optimized way using greedy approach.