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GRAPH AND COLORED GRAPH

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Introduction

A graph is a pictorial device which represents the relation between the data which is a measureable parameter in natural. A graph generates the relation between the different quantity and establish the relation of the parameters. If one quantity changes then another parameter also changes.

The graph is useful for summarizing the information which is very large in nature. The student can take help in the summarization of information by using this techniques. Every research obtains the data and data can be showed easily with the help of graphs. Graphs are helpful for defining the data in a convenient way. Graph denotes the relation between the different parameters and generated the useful information. A graph is providing the concepts that the parameter changes and provides the relation in useful manner. So that is way the graph is useful to provide the meaningful information.

Review of Literature

Bayardo and Agrawal (2009) Different approaches to deal finding ideal affiliation rules had been recently proposed for the knowledge discovery and data mining community by Web.

Zhang et al. (2000) If any case, the tree models highly unstable to little changes in the data, the real downside of CART investigation. Because of the unsteadiness, each tree indicated profoundly changed expectations, and elucidation could be seriously influenced by the irregular inconstancy of the information.

Lemon et al., (2003) Another option to taking care of precariousness was ensemble techniques, for example packing, boosting, and arbitrary woodlands. The strategies relied upon many arrangements of tress instead of a solitary tree.

Buness et al., (2009) Breiman's random forest method, each tree was based on coming back again and again making into parts, and the statement of what will take place in the future was made in the mean of a group of tree rather than of a single tree.

Chipman, George, and McCulloch (2002) R2 method did not change regression into classification, which looked for reasoning conditions in if then form and size to make piece wise regression models, and M5, which made tree based piece-wise linear model. These model made to scale, trees with having an effect equal to the input regression parts in the end, the last point network, were experienced in the statistical literature as tree model.

Color Graph

As the coloring of graph is concerned that the two adjacent vertices will not have a same color. That is, all the vertices of the graph may and may not have the same color. For example if the graph is complete graph then all the vertices of the graph will contain the different colors. It the graph is regular graph then it may be possible that the two vertices which are not adjacent, will have the same color. The vertices in the graph may defined as the label and the graph which have the color is called the chromatic number. The chromatic number is directly associated of the different color of the graph.

For example
If any graph has two different color then it chromatic number is two.
If any graph has three different colors then it chromatic number is three.
If any graph has four different colors then it chromatic number is four.

The chromatic number of null graph is always one and the chromatic number of complete graph is always equal to number of vertices available in the graphs i.e. directly correlated to the vertices.

The good coloring of the graph is that where the minimum color will be used. So less the used color then less the chromatic number of the color graph. The edge colring is also the same concept. In edge coloring of the graph will contain no two edges will contain the same color if they are incident on the same vertex (s).

The theorem of four, five and six colors are very useful in graph theory. It is implied on the planar graph. The graph theory is useful to solve the information theory problem, data structure problems i.e. computer science problems, scheduling problem as well as day to day problems. It is required to solve the related data and is useful in the various field not only of mathematics but also in computer science, engineering and technology.

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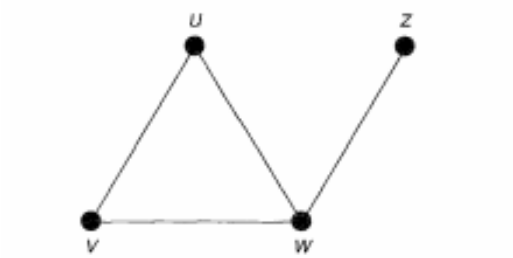
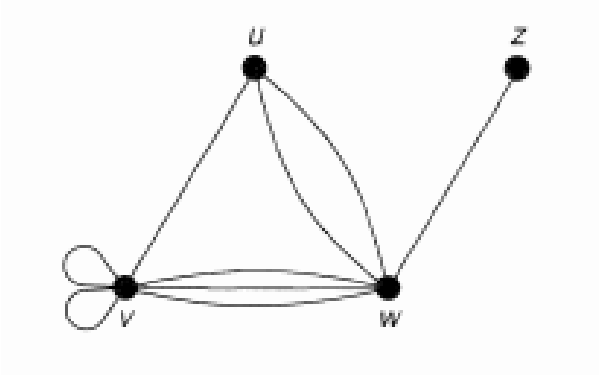
A simple graph is that graph which does not contain the self loop as well as the parallel edges. A graph consists edges and vertices which may be represent the vertices V(G) and edges E(G). The V(G) set will consist the finite number of vertices and the E(G) set will contain the finite number of edges. A edge is a combination of two vertices (except self loop). We assume that {v, w} for which one edge is incident and we say that edge is incident on vw. If we look the figures then we find that the simple graph consists the vertices {v, w, z} and the edges incident on the vertices and consists the edges vw, wz, uv and uw.



As simple graph is concerned that this is graph in which all the vertices are well connected through the edges. The self loop and parallel edges will not be there in simple graph since parallel edges are that edges which are incident on the same vertices. This is also for the self loop. But in simple graph no two or more edges will incident onto the same vertices. Therefore, a simple graph is a type of the graph but all the graphs are not simple graph.



A graph is a combination of vertices as well as edges and generally represented by G. A graph is holding a vertices set V(G) and it is a non-empty set. If the graph is not having the edges then it is called the null graph. If a graph is consisting the edges and then it will consist the edges set E(G), a set of edges which will contains the pair of vertices. A self loop will contain the same vertices. For example, the vertices set will be {u, v, w, z} and the edges consists the pair of vertices like uv, vw, vv (self loop), vw and again vw then this will the parallel edges.

Graph and Map Coloring

Let us take the example to design the time table of any college/school. We think that there is x number of classes and y number of teachers and we have to allocate in the time table. We may think the another approaches for allocating or designing the time table. We think there is one class room and we have to made the time table. Let us divide the time table subject wise and student in consideration. We would allocate in that manner at least one student should present in that subject.

We use subjects as vertices of the graph and the edge will be considered between the student and the subject. If we think about the color graph theory that no two adjacent vertices will have the same color. In this, all the vertices will have the same color and problem related to class rooms has been resolved. But there is another factor which is time related and no much more time in a week to run the educational institutions. So there is requirement to manage the things. Here, the color graph theory is being applied and we will try to resolve the problem by using the minimum color. The using of color is directly correlated with chromatic number and the less the chromatic number, the best in coloring the graph.

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