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Tutonal-5

(1) Difference b/W BFS and DFS

RES (Breadth First Service)

a shortest path in a graph. It uses a queue data shucture which follows first in first out.

In BFI one vertex is selected at a time when it is visited and marked diren its adjacent are visited and stored in the queue. It is slower than DFS.

DES (Depth First Seanch)

DFS is an edge based technique. It was the Stack data structure, perform two stages, first visited vertices are pushed into stack and second if there is no vertices then visited are. popped.

* Applications of BFS and DFS.

ereate nin-spanning tree for all pair shortest portly tree.

using DFS we can find path b/w two given vertices

u and v

- · we can detect cycle in a graph using DES
- ·BFS: In pear to pear network like bit toment, BFS is used to find all neighbour nodes.

· using GPS navigation system BFS is used to find neighbour places.

· Path finding algorithms are based on BAS or DFs.

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|) BES uses queue data shicture Because in BES |
| lovel is explored completely so queue stones the |
| lements of the level from the front edge and |
| removes the elements from the read edge. |
| ose elements which had already explored one will |
| emoved from the back or near edge. |
| we disch to the fellice disch is a factorial series |
| Fs uses stack data shudure because DFR we |
| Stone the previous node till we end at the end |
| g one side of graph so we have to use |
| backbacking for that purpose we use stack |
| ta smeture for DPs. |
| MINES OF SERVICE OF ABOUT OF FROM CHILLY CALLY |

the student was many sucounted a back-137 Sparse Graph: A graph in which the number of codges is much less than the

one level is explored completely so queue

Those elements which had already exp

and property and a very market to come and it.

Stone the previous node till we end

pts uses stack data shudure becau

data shuture for DP.

AT XXI WAS THE WAY THE C B OF ADD THE LESS

possible number of edges. Allo, is supplied to a land and and the way was

Dense Geraph: A Dense graph is a graph in which the maximal number of edges.

Adjacency wist is good for dense and Spare graph supresentation. Shudene that there collected in

toriorsite lines vis? comi

STEP IN 195 (3) NOTTH FOR PSWENTSMAN

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(4) (yelle Detection in Graphia traversal using BFs: when we do a BFs frames from any vertex vin an undirected graph we may encounter a cross edge that points to a previously discovered vertex that is neither an ancestor nor a descendant of the current entex. Each "cross cage" defines a cycle in a undirected graph . If the cross edge is 2 -> y then since y is already discovered we have a path from v to y lay that we have a path v~~xiny~v. that forme an cycle in the million using DPs: when we do so a DFS from any votex v in an undirected graph, we may encounter a back-edge that points to one of the ancestor of the convent vortex v in the DES . Each "back edge" defines a cycle in an undirected graph. If the back edge is 2 > y, then Since y is the aircestor of node x, we have a path from y to x. So we can say that we have a path Day -- x -y that forms a yell. Disjoint set data structure: Also known as unlon find data shucture or merge find set is a data Shucture that stones a collection of disjoint sets disjoint set keeps mack a a set of elements partitioned into several disjoint operations. (1) Find: It determines in which subset a particular dement is in and return the representative payticular set. An item from this

| 4 | Page No. 4) Date: |
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| 8 | . 1112 r bill |
| * | as a "representative" of the set. |
| 100 | (2) union: It morge two different subset into one single Subset, and the representative of one subset become |
| 3 | subset, and the representative of one subset become |
| - | 1.7.8.6.4.1 |
| * | element. This element is placed into a new set |
| 3 | Containing only the new element and the new set |
| 3 | is added to the data smithing |
| * | Party and the Mich property of the party and the party of |
| 2 | Sisted Engl (2-1) & not |
| 3 | (Am. 6) |
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| • | were the mine plant were was sun in |
| 3 | (E) |
| 9 | JOHN DES: 616, HISTORIE OF ANGUB ON DILLEPTO MENT |
| - | BES: G.D. Front CILIEL A. B . ANDING (1) |
| - | of a King Lands at the and indeed a causing |
| マラ | (5) - in the same of the same |
| 9 | TO NOT THE WORLD OF THE WORLD |
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| 9 | The molding of the contraction o |
| • | 4s topological Sort is not unique so there can also |
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| All American Company of the Company | Date: | | |
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| be one more, sequence | 01.9.3 | | |
| 4.5, 2, 3, 1, 0 | | | |
| adjustice on all indep to the other and | Le works | | |
| 5, 40, 0, 2, 30, 1000 | LI TISAL | | |
| - Cartle is | il levery | | |
| 4, 5, 0, 2, 3, 1 | The second second | | |
| a self the many set one allow ald a con- | on mother (1) | | |
| the court of vi hoods si tomals a | | | |
| (9) Periority queue is a type of queue | and the second s | | |
| every element has a key associated to | it and the | | |
| queur returns the element according | to these | | |
| keys, unlike the queue which works | on first | | |
| come first serve basis. | And the second s | | |
| | Carried - | | |
| Heap data structure are great for imple | an analytica a | | |
| principal aliens book the great for truph | and Smaller | | |
| priority queue because of the langest | MACH LARRA | | |
| and a min heap respectively. Nin he | Max reap | | |
| | | | |
| used for min-priority queue and max heap can be used for max priority queue. | | | |
| used for max priority queue. | The state of the s | | |
| | (1) (1) (1) | | |
| & Graph algorithms where priority 9 | here is used | | |
| | - Columbia | | |
| (1) Dijkstra's shortest Path Algorithm u | using priority | | |
| queups: when the goraph is stored | in he form | | |
| a anjacency list or matrix, priority ques | | | |
| used to extract minimum! efficiency we | ren implementing | | |
| Dijkstra algorithm. | Commence of the same of the sa | | |
| - Digital agrandi | A STATE OF THE STA | | |
| (2) Prism's Algorithm: It is used to in | plement | | |
| Prim's Algorithm to stone key of noc | tes and | | |
| extract minimum key nodes at ev | ery step | | |
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| nunc() | Page No. (L) Date: | |
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| · Priority queue are used i | m Huffman codes for data | |
| compression. | | |
| · Priority queues are w | sed to sort heaps. | |
| | | |
| (10) Difference b/10 Ma | ix and rin neaps. | |
| | | |
| Min Heap | Max Heap. | |
| 1. In a Min-heap the key | In a Nax heap the key present | |
| present at the most-nocte | at the noot node must be | |
| must be less than or equal | greater than or equal to among | |
| to among the keys present | the keys present at all 1 | |
| at all of the children | its children | |
| 2. In a ris heap the nin | An a NOX has The may to | |
| key element present at the | In a max neap the max tey clement present at the root | |
| noot. | 770700 500 2000 17057 | |
| | | |
| 3. A nim-heap uses the | A Max neap uses the | |
| ascending priority | descending priority | |
| | 0 0 | |
| 4. In the construction of | In the construction 19 | |
| a nin- heap. the smallest | Max meap, the largest | |
| element has priority. | element has priority | |
| Max Heap (100) | Mins Mean | |
| 3 | | |
| [9] (36) | (1) | |
| (F) (3) (5) | 37 (4) | |
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| (D) (D) | (a) (f) (5) | |
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