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|----|---|--|
| •  | Pattern programs  are duign consisting of numbers, alphabets in a perticular forum  |  |
| >  | Trick:-  Run the outer for loop  for row (no cof line)  is sdentify for every row no how many col are there  on types of element in col.  in what do you need to print. |  |
| 3) | Pattern 1:> Cal  * * * *  Row   |  |
|    | logic > NO of Trow = NO of Coloumn.  Fourtion > Static void patterns (int n)  for (int i=1; ix=n; i++)  |  |

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|------------------|--|--|--|--|--|
|                  |  |  |  |  |  |
|                  | fon (int j=t); j<= 2; j++) mallo [ ]   |  |  |  |  |
|                  | 2 4011 (1100 ) = 1   |  |  |  |  |
|                  | Sout ("* ");   |  |  |  |  |
| y was a superior |  |  |  |  |  |
|                  | 2 Sout ();   |  |  |  |  |
|                  | 4  |  |  |  |  |
|                  | The same of the sa |  |  |  |  |
|                  |  |  |  |  |  |
| 2                | Pattern 2:-  |  |  |  |  |
|                  | 1  |  |  |  |  |
| 2,852            | ME 1 (2 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 112 10 10 10 112 10 10 10 10 10 10 10 10 10 10 10 10 10  |  |  |  |  |
|                  | 123  |  |  |  |  |
|                  | 1234   |  |  |  |  |
|                  | 1 & 5 4 5  |  |  |  |  |
|                  | logic: - Same as above just print i  |  |  |  |  |
|                  | instead of (*)   |  |  |  |  |
|                  |  |  |  |  |  |
|                  | fuction:   |  |  |  |  |
|                  | Static void patterna (int n)   |  |  |  |  |
|                  |  |  |  |  |  |
|                  | fon (sut i=1 ix=n ; i++)   |  |  |  |  |
|                  |  |  |  |  |  |
|                  | f for (int $j=1$ ; $j <= i$ ; $j++$ )  |  |  |  |  |
|                  | training the state of the state |  |  |  |  |
|                  | 3 Sout (j+"");   |  |  |  |  |
|                  |  |  |  |  |  |
|                  | 3 Sout ();   |  |  |  |  |
|                  | + y  |  |  |  |  |
|                  |  |  |  |  |  |

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|   |  |  |  |  |
| 0   | Pottern 3:-  |  |  |  |
|   | THE SAME OF THE SA |  |  |  |
| * * *   |  |  |  |  |
|   |  |  |  |  |
|   | * * * *  |  |  |  |
|   | * * * *  |  |  |  |
|   | * * *  |  |  |  |
|   | * *  |  |  |  |
|   | *  |  |  |  |
|   |  |  |  |  |
|   | logic => No of name = (2n-1) and   |  |  |  |
|   | if (Now <= W).   |  |  |  |
|   | print same no of colour.   |  |  |  |
| else:   |  |  |  |  |
|   | $Col = 2n - \pi o \omega$  |  |  |  |
|   |  |  |  |  |
|   | turction:  |  |  |  |
|   | Static void patterns (int n)   |  |  |  |
|   | of Singapore   |  |  |  |
| on (int i=1 i i (=2m-at i i++)  |  |  |  |  |
|   |  |  |  |  |
|   | it (?<=n) of   |  |  |  |
|   | South  |  |  |  |
|   | 4n0 (int $i=1$ ; $j <= 1$ ; $j++$ )  |  |  |  |
| $ \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} \right) = \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} - \frac{1}{\sqrt{2}} \right) = \frac{1}{\sqrt{2}} \left( \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} \right) = \frac{1}{\sqrt{2}} \left( \frac{1}{2$ |  |  |  |  |
|   |  |  |  |  |
| 2   |  |  |  |  |
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|                             |  |  |  |
|                             | else d   |  |  |
|                             | for (int j=1 i j <= 2n-1 i j++)  |  |  |
|                             | System out print ("* ");   |  |  |
| 3 ystem · part · prunt ( ") |  |  |  |
|                             | 3  |  |  |
|                             | Sout ();   |  |  |
|                             | 4  |  |  |
|                             |  |  |  |
| 0                           | Pattern 4:-  |  |  |
|                             | The second of th |  |  |
|                             | 212  |  |  |
|                             | 3 2 1 2 3  |  |  |
|                             | 4321234  |  |  |
|                             | 5 4 3 2 1 2 3 4 5  |  |  |
|                             | logic: - at each now-  |  |  |
|                             | value of cal = i to 1 and 2 to i   |  |  |
|                             |  |  |  |
|                             | fuction:   |  |  |
|                             | Static void pattern 4 (int n)  |  |  |
|                             |  |  |  |
|                             | fon (înt i=0 i i <n; i++)<="" td=""></n;>  |  |  |
|                             |  |  |  |
|                             | for (int i = 0; j< n-i; j++)   |  |  |
|                             | 2 Sout (" ");  |  |  |
|                             | 3  |  |  |
|                             | tor ("ut j="; j>0; j)  |  |  |
|                             |  |  |  |
|                             | · · · · · · · · · · · · · · · · · · ·  |  |  |

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|--------------------|-----------------------|
| 8                  | · - Recursions :      |
| 3 Sout (j+"") j    | 12=1:1++)             |
| y for (int i = 2 i |                       |
| 8 Sout (3+" "      |                       |
| Sout ();           |                       |
|                    |                       |
|                    |                       |
|                    |                       |