

Peak element in C++																																			
<pre> #include &lt;iostream&gt; #include &lt;vector&gt;  using namespace std;  int findPeakElement(const vector&lt;int&gt;&amp; arr) {     int low = 0, high = arr.size() - 1;      while (low &lt;= high) {         int mid = (low + high) / 2;          if ((mid == 0    arr[mid - 1] &lt;= arr[mid])             &amp;&amp; (mid == arr.size() - 1    arr[mid + 1] &lt;= arr[mid])) {             return mid;         }          if (mid &gt; 0 &amp;&amp; arr[mid - 1] &gt;= arr[mid]) {             high = mid - 1;         } else {             low = mid + 1;         }     }      return -1; // Peak element not found }  int main() {     vector&lt;int&gt; arr = {10, 7, 8, 20, 12};     cout &lt;&lt; findPeakElement(arr) &lt;&lt; endl;     return 0; } </pre>				<b>Dry Run Table:</b> <table> <tr> <th>Iterati on</th><th>lo w</th><th>hig h</th><th>mi d</th><th>arr[mi d-1]</th><th>arr[mi d]</th><th>arr[mid+ 1]</th><th>Condit ion Met</th><th>Acti on</th></tr> <tr> <td>1</td><td>0</td><td>4</td><td>2</td><td>7</td><td>8</td><td>20</td><td>Right neighbo r &gt; mid</td><td>low = mid + 1 = 3</td></tr> <tr> <td>2</td><td>3</td><td>4</td><td>3</td><td>8</td><td>20</td><td>12</td><td>Both neighbo rs ≤ mid → <b>peak found!</b></td><td>Retu rn 3</td></tr> </table>					Iterati on	lo w	hig h	mi d	arr[mi d-1]	arr[mi d]	arr[mid+ 1]	Condit ion Met	Acti on	1	0	4	2	7	8	20	Right neighbo r > mid	low = mid + 1 = 3	2	3	4	3	8	20	12	Both neighbo rs ≤ mid → <b>peak found!</b>	Retu rn 3
Iterati on	lo w	hig h	mi d	arr[mi d-1]	arr[mi d]	arr[mid+ 1]	Condit ion Met	Acti on																											
1	0	4	2	7	8	20	Right neighbo r > mid	low = mid + 1 = 3																											
2	3	4	3	8	20	12	Both neighbo rs ≤ mid → <b>peak found!</b>	Retu rn 3																											
<pre> int main() {     vector&lt;int&gt; arr = {10, 7, 8, 20, 12};     cout &lt;&lt; findPeakElement(arr) &lt;&lt; endl;     return 0; } </pre>				<b>✔ Output:</b>  3																															