***Evaluating a postfix expression in java using a stack data structure***

**Consider a postfix expression:**

**2345\*/9-**

**-if it is a number,push into stack**

**-if it is an operator,pop 2 numbers from the stack and perform the arithematic operation with the new arithematic operator**

**-place the obtained resut back into the stack**

**Step 1:**

|  |
| --- |
|  |
|  |
|  |
|  |
| **2** |

**Step 2:**

|  |
| --- |
|  |
|  |
|  |
| **3** |
| **2** |

**Step 3:**

|  |
| --- |
|  |
|  |
| **4** |
| **3** |
| **2** |

**Step 4:**

|  |
| --- |
|  |
| **5** |
| **4** |
| **3** |
| **2** |

**Step 5:**

**-\* is obtained as new operator**

**-pop 5,4**

|  |
| --- |
|  |
|  |
|  |
| **3** |
| **2** |

**Step 6:**

**5\*4=20**

**Put 20 back into the stack**

|  |
| --- |
|  |
|  |
| **20** |
| **3** |
| **2** |

**Step 7:**

**/ is obtained as new operator**

**Pop 20 and 3**

|  |
| --- |
|  |
|  |
|  |
|  |
| **2** |

**Step 8:**

**Divide 3 and 20**

**3/20=0.15**

**Push 0.15 back into the stack**

|  |
| --- |
|  |
|  |
|  |
| **0.15** |
| **2** |

**Step 9:**

|  |
| --- |
|  |
|  |
| **9** |
| **0.15** |
| **2** |

**Step 10:**

* **\_ Is obtained as new operator**
* **Pop 9 and 0.15**

|  |
| --- |
|  |
|  |
|  |
|  |
| **2** |

**Step 11:**

**Subtract 0.15 and 9**

**0.15-9=-8.85**

**Push -8.85 int0 stack**

**Step 12:**

|  |
| --- |
|  |
|  |
|  |
| **-8.85** |
| **2** |

**Step 13:**

**+ is obtained as new operator**

**Pop -8.85 and 2 from the stack**

**Result =2+(-8.85)=-6.85**

**There fore the result of given postfix expression is -6.85**