

Operator Related Problems

(Total 15 questions)

SL	Problem statement	Difficulty levels										
1.	<p>Program that will decide whether a number is positive or not.</p> <table border="1"><thead><tr><th>Sample input</th><th>Sample output</th></tr></thead><tbody><tr><td>100</td><td>Positive</td></tr><tr><td>-11.11</td><td>Negative</td></tr><tr><td>0</td><td>Positive</td></tr></tbody></table>	Sample input	Sample output	100	Positive	-11.11	Negative	0	Positive	*		
Sample input	Sample output											
100	Positive											
-11.11	Negative											
0	Positive											
2.	<p>Program that will decide whether a number is even or odd.</p> <table border="1"><thead><tr><th>Sample input</th><th>Sample output</th></tr></thead><tbody><tr><td>50</td><td>Even</td></tr><tr><td>-77</td><td>Odd</td></tr><tr><td>0</td><td>Even</td></tr></tbody></table>	Sample input	Sample output	50	Even	-77	Odd	0	Even	*		
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50	Even											
-77	Odd											
0	Even											
3.	<p>Program that will take an integer of length one from the terminal and then display the digit in English.</p> <table border="1"><thead><tr><th>Sample input</th><th>Sample output</th></tr></thead><tbody><tr><td>9</td><td>nine</td></tr><tr><td>0</td><td>zero</td></tr></tbody></table>	Sample input	Sample output	9	nine	0	zero	*				
Sample input	Sample output											
9	nine											
0	zero											
4.	<p>Program that will check whether a triangle is valid or not, when the three angles (angle value should be such that, $0 < \text{value} < 180$) of the triangle are entered through the keyboard.</p> <p>[Hint: A triangle is valid if the sum of all the three angles is equal to 180 degrees.]</p> <table border="1"><thead><tr><th>Sample input</th><th>Sample output</th></tr></thead><tbody><tr><td>90 45 45</td><td>Yes</td></tr><tr><td>30 110 40</td><td>Yes</td></tr><tr><td>160 20 30</td><td>No</td></tr><tr><td>0 180 0</td><td>No</td></tr></tbody></table>	Sample input	Sample output	90 45 45	Yes	30 110 40	Yes	160 20 30	No	0 180 0	No	*
Sample input	Sample output											
90 45 45	Yes											
30 110 40	Yes											
160 20 30	No											
0 180 0	No											

5.	<p>Program that will read from the console a random positive nonzero number and determine if it is a power of 2.</p> <table border="1" data-bbox="176 206 1346 375"> <thead> <tr> <th data-bbox="181 213 780 255">Sample input</th><th data-bbox="780 213 1346 255">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="181 255 780 297">1</td><td data-bbox="780 255 1346 297">Yes</td></tr> <tr> <td data-bbox="181 297 780 340">512</td><td data-bbox="780 297 1346 340">Yes</td></tr> <tr> <td data-bbox="181 340 780 382">1022</td><td data-bbox="780 340 1346 382">No</td></tr> </tbody> </table>	Sample input	Sample output	1	Yes	512	Yes	1022	No	**				
Sample input	Sample output													
1	Yes													
512	Yes													
1022	No													
6.	<p>Program that will read from the console a random number and check if it is a nonzero positive number. If the check is yes, it will determine if the number is a power of 2.</p> <p>If the check fails the program will check for two more cases. If the number is zero, the program will print “Zero is not a valid input”. Else it will print “Negative input is not valid”.</p> <table border="1" data-bbox="176 677 1346 931"> <thead> <tr> <th data-bbox="181 684 780 726">Sample input</th><th data-bbox="780 684 1346 726">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="181 726 780 768">0</td><td data-bbox="780 726 1346 768">Zero is not a valid input</td></tr> <tr> <td data-bbox="181 768 780 811">1</td><td data-bbox="780 768 1346 811">Yes</td></tr> <tr> <td data-bbox="181 811 780 853">512</td><td data-bbox="780 811 1346 853">Yes</td></tr> <tr> <td data-bbox="181 853 780 895">1022</td><td data-bbox="780 853 1346 895">No</td></tr> <tr> <td data-bbox="181 895 780 937">-512</td><td data-bbox="780 895 1346 937">Negative input is not valid</td></tr> </tbody> </table>	Sample input	Sample output	0	Zero is not a valid input	1	Yes	512	Yes	1022	No	-512	Negative input is not valid	***
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-512	Negative input is not valid													
7.	<p>Program that will take two numbers X & Y as inputs and decide whether X is greater than/less than/equal to Y.</p> <table border="1" data-bbox="176 1121 1346 1290"> <thead> <tr> <th data-bbox="181 1127 780 1170">Sample input (X,Y)</th><th data-bbox="780 1127 1346 1170">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="181 1170 780 1212">5 -10</td><td data-bbox="780 1170 1346 1212">5 is greater than -10</td></tr> <tr> <td data-bbox="181 1212 780 1254">5 10</td><td data-bbox="780 1212 1346 1254">5 is less than 10</td></tr> <tr> <td data-bbox="181 1254 780 1296">5 5</td><td data-bbox="780 1254 1346 1296">5 is equal to 5</td></tr> </tbody> </table>	Sample input (X,Y)	Sample output	5 -10	5 is greater than -10	5 10	5 is less than 10	5 5	5 is equal to 5	*				
Sample input (X,Y)	Sample output													
5 -10	5 is greater than -10													
5 10	5 is less than 10													
5 5	5 is equal to 5													
8.	<p>Program that will decide whether a year is leap year or not.</p> <p>Yes, if (Year % 4 == 0 && year % 100 != 0) (Year % 400 ==0)</p> <table border="1" data-bbox="176 1514 1346 1683"> <thead> <tr> <th data-bbox="181 1520 780 1562">Sample input</th><th data-bbox="780 1520 1346 1562">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="181 1562 780 1605">2000</td><td data-bbox="780 1562 1346 1605">Yes</td></tr> <tr> <td data-bbox="181 1605 780 1647">2004</td><td data-bbox="780 1605 1346 1647">Yes</td></tr> <tr> <td data-bbox="181 1647 780 1689">2014</td><td data-bbox="780 1647 1346 1689">No</td></tr> </tbody> </table>	Sample input	Sample output	2000	Yes	2004	Yes	2014	No	*				
Sample input	Sample output													
2000	Yes													
2004	Yes													
2014	No													

9.	<p>Program that will categorize a single character that is entered at the terminal, whether it is an alphabet, a digit or a special character.</p> <p>(Restriction: Without math.h)</p> <table border="1" data-bbox="176 291 1346 496"> <thead> <tr> <th data-bbox="181 297 747 340">Sample input</th><th data-bbox="747 297 1346 340">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="181 340 747 382">z</td><td data-bbox="747 340 1346 382">Alphabet</td></tr> <tr> <td data-bbox="181 382 747 424">A</td><td data-bbox="747 382 1346 424">Alphabet</td></tr> <tr> <td data-bbox="181 424 747 466">8</td><td data-bbox="747 424 1346 466">Digit</td></tr> <tr> <td data-bbox="181 466 747 508">*</td><td data-bbox="747 466 1346 508">Special</td></tr> </tbody> </table>	Sample input	Sample output	z	Alphabet	A	Alphabet	8	Digit	*	Special	*																																
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10.	<p>Program that will evaluate simple expressions of the form-</p> $<\text{number1}> \text{ } <\text{operator}> \text{ } <\text{number2}>$ <p>; where operators are (+, -, *, /)</p> <p>And if the operator is “/”, then check if <number2> nonzero or not.</p> <table border="1" data-bbox="176 882 1346 1056"> <thead> <tr> <th data-bbox="181 889 747 931">Sample input</th><th data-bbox="747 889 1346 931">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="181 931 747 973">100 * 55.5</td><td data-bbox="747 931 1346 973">Multiplication: 5550</td></tr> <tr> <td data-bbox="181 973 747 1015">100 / -5.5</td><td data-bbox="747 973 1346 1015">Division: -18.181818</td></tr> <tr> <td data-bbox="181 1015 747 1058">100 / 0</td><td data-bbox="747 1015 1346 1058">Division: Zero as divisor is not valid!</td></tr> </tbody> </table>	Sample input	Sample output	100 * 55.5	Multiplication: 5550	100 / -5.5	Division: -18.181818	100 / 0	Division: Zero as divisor is not valid!	**																																		
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11.	<p>Program that will take the final score of a student in a particular subject as input and find his/her grade.</p> <table border="1" data-bbox="246 1284 1318 1531"> <thead> <tr> <th data-bbox="246 1284 344 1326">Marks</th><th data-bbox="344 1284 556 1326">Letter Grade</th><th data-bbox="556 1284 736 1326">Marks</th><th data-bbox="736 1284 948 1326">Letter Grade</th><th data-bbox="948 1284 1127 1326">Marks</th><th data-bbox="1127 1284 1318 1326">Letter Grade</th></tr> </thead> <tbody> <tr> <td data-bbox="246 1326 344 1368">90-100</td><td data-bbox="344 1326 556 1368">A</td><td data-bbox="556 1326 736 1368">70-73</td><td data-bbox="736 1326 948 1368">C+</td><td data-bbox="948 1326 1127 1368">Less than 55</td><td data-bbox="1127 1326 1318 1368">F</td></tr> <tr> <td data-bbox="246 1368 344 1410">86-89</td><td data-bbox="344 1368 556 1410">A-</td><td data-bbox="556 1368 736 1410">66-69</td><td data-bbox="736 1368 948 1410">C</td><td data-bbox="948 1368 1127 1410"></td><td data-bbox="1127 1368 1318 1410"></td></tr> <tr> <td data-bbox="246 1410 344 1453">82-85</td><td data-bbox="344 1410 556 1453">B+</td><td data-bbox="556 1410 736 1453">62-65</td><td data-bbox="736 1410 948 1453">C-</td><td data-bbox="948 1410 1127 1453"></td><td data-bbox="1127 1410 1318 1453"></td></tr> <tr> <td data-bbox="246 1453 344 1495">78-81</td><td data-bbox="344 1453 556 1495">B</td><td data-bbox="556 1453 736 1495">58-61</td><td data-bbox="736 1453 948 1495">D+</td><td data-bbox="948 1453 1127 1495"></td><td data-bbox="1127 1453 1318 1495"></td></tr> <tr> <td data-bbox="246 1495 344 1537">74-77</td><td data-bbox="344 1495 556 1537">B-</td><td data-bbox="556 1495 736 1537">55-57</td><td data-bbox="736 1495 948 1537">D</td><td data-bbox="948 1495 1127 1537"></td><td data-bbox="1127 1495 1318 1537"></td></tr> </tbody> </table> <table border="1" data-bbox="176 1600 1346 1727"> <thead> <tr> <th data-bbox="181 1607 747 1649">Sample input</th><th data-bbox="747 1607 1346 1649">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="181 1649 747 1691">91.5</td><td data-bbox="747 1649 1346 1691">Grade: A</td></tr> <tr> <td data-bbox="181 1691 747 1733">50</td><td data-bbox="747 1691 1346 1733">Grade: F</td></tr> </tbody> </table>	Marks	Letter Grade	Marks	Letter Grade	Marks	Letter Grade	90-100	A	70-73	C+	Less than 55	F	86-89	A-	66-69	C			82-85	B+	62-65	C-			78-81	B	58-61	D+			74-77	B-	55-57	D			Sample input	Sample output	91.5	Grade: A	50	Grade: F	*
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12.	<p>Program that will construct a menu for performing arithmetic operations. The user will give two real numbers (a, b) on which the arithmetic operations will be performed and an integer number ($1 \leq \text{Choice} \leq 4$) as a choice. Choice-1, 2, 3, 4 are for performing addition, subtraction, multiplication, division (quotient) respectively.</p> <table border="1"> <thead> <tr> <th>Sample input (a, b, Choice)</th><th>Sample output</th></tr> </thead> <tbody> <tr> <td>5 10 3</td><td>Multiplication: 50</td></tr> <tr> <td>-5 10.5 4</td><td>Quotient: 0</td></tr> </tbody> </table>	Sample input (a, b, Choice)	Sample output	5 10 3	Multiplication: 50	-5 10.5 4	Quotient: 0	*		
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<p>14.</p>	<p>Program that will construct a menu for performing arithmetic operations. The user will give two real numbers (a, b) on which the arithmetic operations will be performed and an integer number ($1 \leq \text{Choice} \leq 4$) as a choice. Choice-1, 2, 3, 4 are for performing addition, subtraction, multiplication, division respectively.</p> <p>If Choice-4 is selected, the program will check if b is nonzero.</p> <p>If the check is true, the program will ask for another choice ($1 \leq \text{Case} \leq 2$), where Case-1, 2 evaluate quotient and remainder respectively. If the check is false, it will print an error message “Error: Divisor is zero” and halt.</p>	<p>***</p>								
	<table border="1" data-bbox="163 517 1346 834"> <thead> <tr> <th data-bbox="163 517 775 559">Sample input</th><th data-bbox="775 517 1346 559">Sample output</th></tr> </thead> <tbody> <tr> <td data-bbox="163 559 775 644">5 10 3</td><td data-bbox="775 559 1346 644">Multiplication: 50</td></tr> <tr> <td data-bbox="163 644 775 770">-5 10.5 4 2</td><td data-bbox="775 644 1346 770">Reminder: -48</td></tr> <tr> <td data-bbox="163 770 775 834">-5 0 4</td><td data-bbox="775 770 1346 834">Error: Divisor is zero</td></tr> </tbody> </table>	Sample input	Sample output	5 10 3	Multiplication: 50	-5 10.5 4 2	Reminder: -48	-5 0 4	Error: Divisor is zero	<p>***</p>
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