SQE-ASSIGNMENT 1 & 2

Abstract

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Contents

Description

Shalimar Housing Society is located near Faisalabad City. The society covers an area of 220 acres i.e. 35200 marla. 20 acres is commercial area while the rest of 200 acres is housing area. There are 700 20 marla plots, 800 15 marla plots, 300 12 marla plots, 80 10 marla plots, 200 8 marla plots. The tax on buying a plot can range from 120,000 for 8 marla, 150,000 for 10 marla, 190,000 for 12 marla, 240,000 for 15 marla and 270,000 for 20 marla, depending on the size of the plot. The society owners are planning for an extension to the society. There is another 30 acres vacant land beside the society which the society is planning to acquire only if a minimum of 80 and a maximum of 200 applications are received from new buyers. The owners of the vacant land demand a minimum of 18 acres be bought by the society if the society owners wish to buy it.

A person wants to get a plot of 15 marla and wants to build a 2-story house with 4 rooms of equal size on each floor. Maximum height of the house can be 20m and there can be a maximum of 2 floors on the house. Also, the length and width of a single room can be a minimum of 3m and a maximum of 5m. According to society's construction limitations, height of a house cannot be more than 20meter.

Functions

1. roomVolumeCalc(length, width, height)
2. landpurchase(no. of applications, amount of land planned to buy)
3. taxValidator(plotsize, taxrate)

roomVolumeCalc(length, width, height)

Here n = 3

Possible No. of test cases = $5^n = 5^3 = 125$

For Minimum Volume the minimum value set will be 1, 1 ,1 (meters)

For Minimum Volume the maximum value set will be 5, 5 ,10 (meters)

Test Cases

1. (1, 1, 1)
2. (1, 1, 2)
3. (1, 1, 5)
4. (1, 1, 9)
5. (1, 1, 10)
6. (1, 2, 1)
7. (1, 2, 2)
8. (1, 2, 5)
9. (1, 2, 9)
10. (1, 2, 10)
11. (1, 3, 1)
12. (1, 3, 2)
13. (1, 3, 5)
14. (1, 3, 9)
15. (1, 3, 10)
16. (1, 4, 1)
17. (1, 4, 2)
18. (1, 4, 5)
19. (1, 4, 9)
20. (1, 4, 10)
21. (1, 5, 1)
22. (1, 5, 2)
23. (1, 5, 5)
24. (1, 5, 9)
25. (1, 5, 10)
26. (2, 1, 1)

27. (2, 1, 2)
28. (2, 1, 5)
29. (2, 1, 9)
30. (2, 1, 10)
31. (2, 2, 1)
32. (2, 2, 2)
33. (2, 2, 5)
34. (2, 2, 9)
35. (2, 2, 10)
36. (2, 3, 1)
37. (2, 3, 2)
38. (2, 3, 5)
39. (2, 3, 9)
40. (2, 3, 10)
41. (2, 4, 1)
42. (2, 4, 2)
43. (2, 4, 5)
44. (2, 4, 9)
45. (2, 4, 10)
46. (2, 5, 1)
47. (2, 5, 2)
48. (2, 5, 5)
49. (2, 5, 9)
50. (2, 5, 10)
51. (3, 1, 1)
52. (3, 1, 2)
53. (3, 1, 5)
54. (3, 1, 9)
55. (3, 1, 10)
56. (3, 2, 1)
57. (3, 2, 2)
58. (3, 2, 5)
59. (3, 2, 9)
60. (3, 2, 10)
61. (3, 3, 1)
62. (3, 3, 2)
63. (3, 3, 5)
64. (3, 3, 9)
65. (3, 3, 10)
66. (3, 4, 1)
67. (3, 4, 2)
68. (3, 4, 5)
69. (3, 4, 9)
70. (3, 4, 10)

71. (3, 5, 1)
72. (3, 5, 2)
73. (3, 5, 5)
74. (3, 5, 9)
75. (3, 5, 10)
76. (4, 1, 1)
77. (4, 1, 2)
78. (4, 1, 5)
79. (4, 1, 9)
80. (4, 1, 10)
81. (4, 2, 1)
82. (4, 2, 2)
83. (4, 2, 5)
84. (4, 2, 9)
85. (4, 2, 10)
86. (4, 3, 1)
87. (4, 3, 2)
88. (4, 3, 5)
89. (4, 3, 9)
90. (4, 3, 10)
91. (4, 4, 1)
92. (4, 4, 2)
93. (4, 4, 5)
94. (4, 4, 9)
95. (4, 4, 10)
96. (4, 5, 1)
97. (4, 5, 2)
98. (4, 5, 5)
99. (4, 5, 9)
100. (4, 5, 10)
101. (5, 1, 1)
102. (5, 1, 2)
103. (5, 1, 5)
104. (5, 1, 9)
105. (5, 1, 10)
106. (5, 2, 1)
107. (5, 2, 2)
108. (5, 2, 5)
109. (5, 2, 9)
110. (5, 2, 10)
111. (5, 3, 1)
112. (5, 3, 2)
113. (5, 3, 5)
114. (5, 3, 9)

115. (5, 3, 10)
116. (5, 4, 1)
117. (5, 4, 2)
118. (5, 4, 5)
119. (5, 4, 9)
120. (5, 4, 10)
121. (5, 5, 1)
122. (5, 5, 2)
123. (5, 5, 5)
124. (5, 5, 9)
125. (5, 5, 10)

landDecider(no. of applications, amount of land planned to buy)

Here n= 2

Possible No. of test cases = $5^n = 5^2 = 25$

Test Cases

1. (80, 18)
2. (80, 19)
3. (80, 25)
4. (80, 29)
5. (80, 30)
6. (81, 18)
7. (81, 19)
8. (81, 25)
9. (81, 29)
10. (81, 30)
11. (150, 18)
12. (150, 19)
13. (150, 25)
14. (150, 29)
15. (150, 30)
16. (199, 18)
17. (199, 19)
18. (199, 25)
19. (199, 29)
20. (199, 30)
21. (200, 18)
22. (200, 19)
23. (200, 25)
24. (200, 29)
25. (200, 30)

taxValidator(plotsize, taxrate)

Possible No. of test cases = $5^n = 5^2 = 25$

1. (8, 120000)
2. (10, 120000)
3. (12, 120000)
4. (15, 120000)
5. (20, 120000)
6. (8, 150000)
7. (10, 150000)
8. (12, 150000)
9. (15, 150000)
10. (20, 150000)
11. (8, 190000)
12. (10, 190000)
13. (12, 190000)
14. (15, 190000)
15. (20, 190000)
16. (8, 240000)
17. (10, 240000)
18. (12, 240000)
19. (15, 240000)
20. (20, 240000)
21. (8, 270000)
22. (10, 270000)
23. (12, 270000)
24. (15, 270000)
25. (20, 270000)

Strong Robust:

1. roomVolumeCalc(length, width, height)
2. landpurchase(no. of applications, amount of land planned to buy)
3. taxValidator(plotsize, taxrate)

roomVolumeCalc(length, width, height)

3 < Length < 5
3 < Width < 5
0 < height < 20
{ < 6 , 6 , 21 > , < 6 , 6 , 19 > , < 6 , 4 , 21 > , < 4 , 6 , 21 > , < 6 , 4 , 19 > , < 4 , 6, 19 > , < 4 , 3 , 21 > ,

< 2 , 2 , -1 > , < 2 , 2 , 1 > , < 2 , 4 , -1 > , < 4 , 2 , -1 > < 4 , 4 , -1 > , < 4 , 2 , 1 > < 2 , 4 , 1 >

landDecider(no. of applications, amount of land planned to buy)

18 < amount of land planned to buy < 30
80 < No. of applications < 201
{ < 31 , 201 > , < 201 , 17 > , < 199 , 31 > , < 17 , 81 > , < 17 , 81 > , < 20 , 81 >

taxValidator(plotsize, taxrate)

8 < plotsize < 20
150000 < Taxrate < 270000
{ (21, 270001), (270001, 19), (260000, 21), (7, 140000), (7, 150001), (10, 150001) }