

pythonProject2 - C:\Users\kadi\AppData\Roaming\JetBrains\PyCharmCE2022.1\scratches\optimal BST.py

Scratches > optimal BST.py

Project

- copy the program recursive.py
- fact non recursive.py
- fact recursive.py
- fib non recursive.py
- fib recursive.py
- floyds.py
- gcd non recursive.py
- gcd recursive.py
- knapsack.py
- lcm non recursive.py
- lcm recursive.py
- max and min.py
- max non recursive.py
- max recursive.py
- mergesort.py
- MST.py
- multiplication non recursive.py
- multiplication recursive.py
- n-queens.py
- optimal BST.py
- palindrome non recursive.py
- palindrome recursive.py
- prime or not non recursive.py
- prime or not recursive.py
- scratch.py
- stressens multiplication.py
- sumsubset.py

```
1 def optCost(freq, i, j):
2     if j < i:
3         return 0
4     if j == i:
5         return freq[i]
6     fsum = Sum(freq, i, j)
7     Min = 999999999999
8     for r in range(i, j + 1):
9         cost = (optCost(freq, i, r - 1) +
10                optCost(freq, r + 1, j))
11         if cost < Min:
12             Min = cost
13     return Min + fsum
14 def optimalSearchTree(keys, freq, n):
15     return optCost(freq, 0, n - 1)
16 def Sum(freq, i, j):
17     s = 0
18     for k in range(i, j + 1):
19         s += freq[k]
20     return s
21 if __name__ == '__main__':
22     keys = [10, 12, 20]
23     freq = [34, 8, 50]
24     n = len(keys)
25     if __name__ == '__main__':
```

Version Control Run Python Packages TODO Python Console Problems Terminal Services

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The image shows a screenshot of a code editor with a project explorer on the left and a code editor on the right. The project explorer lists various Python files, including 'copy the program recursive.py', 'fact non recursive.py', 'fact recursive.py', 'fib non recursive.py', 'fib recursive.py', 'floyds.py', 'gcd non recursive.py', 'gcd recursive.py', 'knapsack.py', 'lcm non recursive.py', 'lcm recursive.py', 'max and min.py', 'max non recursive.py', 'max recursive.py', 'mergesort.py', 'MST.py', 'multiplication non recursive.py', 'multiplication recursive.py', 'n-queens.py', 'optimal BST.py', 'palindrome non recursive.py', 'palindrome recursive.py', 'prime or not non recursive.py', 'prime or not recursive.py', 'scratch.py', 'stressens multiplication.py', and 'sumsubset.py'. The code editor displays the following Python code:

```
7 Min = 999999999999
8 for r in range(i, j + 1):
9     cost = (optCost(freq, i, r - 1) +
10            optCost(freq, r + 1, j))
11     if cost < Min:
12         Min = cost
13 return Min + fsum
14 def optimalSearchTree(keys, freq, n):
15     return optCost(freq, 0, n - 1)
16 def Sum(freq, i, j):
17     s = 0
18     for k in range(i, j + 1):
19         s += freq[k]
20     return s
21 if __name__ == '__main__':
22     keys = [10, 12, 20]
23     freq = [34, 8, 50]
24     n = len(keys)
25     print("Optimal Binary search is", optimalSearchTree(keys, freq, n))
```

The code defines a function `optimalSearchTree` that returns the minimum cost of an optimal binary search tree. It uses a helper function `Sum` to calculate the sum of frequencies for a given range of keys. The main function initializes the keys and frequencies, and prints the result of the `optimalSearchTree` function.



