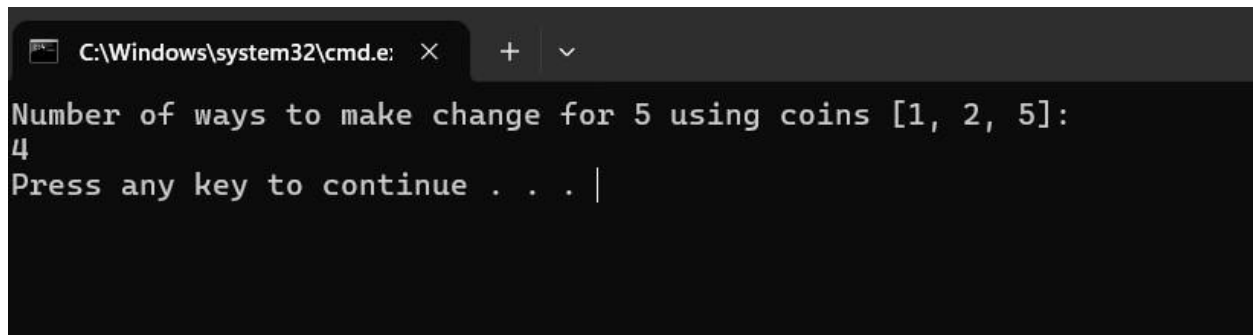


111) Coin change problem

CODE:

```
def coin_change(coins, amount):  
    dp = [0] * (amount + 1)    dp[0]  
    = 1  
    for coin in coins:        for j in  
range(coin, amount + 1):      dp[j]  
+= dp[j - coin]  
  
    return dp[amount]  
if __name__ ==  
"__main__":  
    coins = [1, 2, 5]  
    amount = 5  
    print(f"Number of ways to make change for {amount} using coins  
{coins}:")    print(coin_change(coins, amount)) OUTPUT:
```

A screenshot of a Windows command prompt window. The title bar shows the path 'C:\Windows\system32\cmd.e' and standard window controls. The command prompt displays the output of the program: 'Number of ways to make change for 5 using coins [1, 2, 5]:' followed by the number '4' on the next line. A cursor is visible at the end of the prompt 'Press any key to continue . . . |'.

TIME COMPLEXITY : $O(V \cdot E)$