98.Dice Throw Problem

AIM: To solve the dice throw problem

PROGRAM:

```
def diceThrow(m, n, S):
    dp = [[0] * (S + 1) for _ in range(m + 1)]
    dp[0][0] = 1
    for i in range(1, m + 1):   # i is the number of dice used
        for j in range(1, S + 1):   # j is the sum we are trying to achieve
            dp[i][j] = 0
            # Count ways to get sum j using i dice
            for k in range(1, min(n, j) + 1):
                dp[i][j] += dp[i-1][j-k]

    return dp[m][S]
m = 3   # Number of dice
n = 6   # Number of faces on each die
S = 8   # Sum we want to achieve

print(f"Number of ways to get sum {S} with {m} dice each with {n} faces:", diceThrow(m, n, S))
```

OUTPUT:

```
Number of ways to get sum 8 with 3 dice each
    with 6 faces: 21
```

TIME COMPLEXITY: O(m*S*min(n,S))