LONGEST ARITHMETIC PROGRESSION

$dp[j] = \{$ PROGRESSION DIFFERENCE STEP : PROGRESSION LENGTH $\}$ FOR PROGRESSION STARTING AT INDEX j OF input ARRAY

```
dp = {}

n = len(input)

ans = 1

for i in range(n):
    for j in range(i):
        diff = input[i] - input[j]
        if diff not in dp[j]:
            dp[j][diff] = 1
        dp[i][diff] = dp[j][diff] + 1
        ans = max(ans, dp[i][diff])

return ans
```

COMPLEXITY : $O(n^2)$