COMP3121 Assignment 3 - Q3

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Answer

We solve all subproblems of the form: "Find the maximum flies can catch if frog start sitting on i^{th} $(1 <= i <= n)$ lily pad". The base cases are when $i > n$, $opt(i) = 0$. The recursion is:

$$opt(i) = f_i + max\{opt(i+3), opt(i+4)\}.$$

Hence we can get the answer by solving all subproblems from $i = n$ to $i = 1$. The maximum flies can catch is $opt(1)$.
The time complexity is $O(n)$ because there are n subproblems, and each subproblem takes $O(1)$ for adding and comparing.