

```
int numTrees(int n) {  
    int depth;  
    int index;  
    int* dp;  
  
    dp = (int*)malloc(sizeof(int) * (n+1));  
    memset(dp, 0x0, sizeof(int) * (n+1));  
    dp[0] = 1;  
    dp[1] = 1;  
  
    for(depth = 2; depth<=n; depth++)  
    {  
        for(index = 0; index < depth; index++)  
        {  
            dp[depth] += dp[index] * dp[depth - index - 1];  
        }  
    }  
  
    return dp[n];  
}
```