

Programming Refresher Workshop

Session 5 Exercises

Learning objective:

- Recursion

Exercise 14 (ex14): Christmas Presents

The following lyric is extracted from the Christmas song “The Twelve Days of Christmas”:

On the first day of Christmas,
my true love sent to me
A partridge in a pear tree.

On the second day of Christmas,
my true love sent to me
Two turtle doves,
And a partridge in a pear tree.

On the third day of Christmas,
my true love sent to me
Three French hens,
Two turtle doves,
And a partridge in a pear tree.

Going by this logic, write a program using recursion to find out how many presents you have received from your true love in a total of n days (for $n > 0$).

Your program will read a positive integer, which is the number of days of interest. Following are some sample runs, in which the underlined blue numbers are the input.

Sample run #1:

```
Please enter the number of days: 1
You have entered the number of days as: 1
The number of presents received in 1 day is 1.
```

Sample run #2:

```
Please enter the number of days: 12
You have entered the number of days as: 12
The number of presents received in 12 days is 364.
```

Sample run #3:

```
Please enter the number of days: 400
You have entered the number of days as: 400
The number of presents received in 400 days is 10746800.
```