Fondamenti di Informatica - Compito A

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Exercise (6 points)

Write a recursive function in language C with the following interface:

```
int even2(int a[], int n);
```

that considers the array `a` from cell 0 to cell `n` e returns

- 1 if all the elements in even position (i.e., with index 0, 2, 4, ...) are even
- 0 otherwise.

For example, if the array `a` contains

6	1	2	3	4	6	1	0	2	6
0	1	2	3	4	5	6	7	8	9

then `even2(a,8)` returns 0 (since a[6] is not even), while `even2(a,3)` returns 1 (since both a[0] and a[2] are even).

Afterwards, show how the following code (that invokes the previously defined function) is executed, by showing the activation records.

```
void p(int a[],int c,int *n)
{       int i;
        for (i=c;i<*n;i++)
        {       c++;
                a[c]++;
        }
        if (even2(a,*n))
                 (*n)++;
        else (*n)--;
}

main()
{       int a[5]={1,2,3,4,7}, c=1,n=4;
        p(a,c,&n);
}
```

Solution

```
int even2(int a[], int n)
{
        if (n<0)
                return 1;
        if (n % 2 == 1)
                return even2(a,n-1);
        if (a[n] % 2 == 0)
                return even2(a,n-2);
        else return 0;
}
```