INTRODUCTION

In this activity, you are to practice writing recursive functions using arrays.

RECURRING OVER ARRAYS

Consider this python program:

```
def main():

    numbers = getNumbers(); # numbers is a list of numbers

    print("the mean is",mean(numbers))
    print("the number of even integers is",countEvens(numbers))

def getNumbers():
    a = eval(input("Give me an integer: "))
    b = eval(input("Another: "))
    c = eval(input("Another: "))
    d = eval(input("Another: "))
    e = eval(input("Another: "))
    return [a,b,c,d,e] # return a list of numbers

def mean(numbers):
    return sum(numbers) / len(numbers)

def head(items): return items[0]
def tail(items): return items[1:]

main()
```

Write a similar program in C using arrays instead of list. Finish this program by adding *sum* and *countEvens* functions and by uncommenting the lines in *main* that call *mean* and *countEvens*. The *countEvens* function should implement the following logic:

$countEvens(c)$	is	0	if c is the empty array
$countEvens(c)$	is	$1 + countEvens(tail(c))$	if $head(c)$ is even
$countEvens(c)$	is	$0 + countEvens(tail(c))$	otherwise

Come up with your own recurrence equation and implementation of the *sum* function.

Place the working program in a directory named *arecur* that hangs off your *clab* directory. Name the program *arecur.c*.

Note that your tail funtion will return pointer to integers. For example:

```
return &array[1];
```

Make sure that your function definition has proper return type.

SUBMISSION

Do a directory listing of *arecur*. You should see something like:

```
arecur.c
```

Once you are done with the program, you need to demonstrate the code to the instructor. During the demonstration, the instructor may ask you to write a separate code involving a similar concept. Once you have satisfied the requirements stated by the instructor, you need to submit your activity. Make sure you are in the *arecur* directory. Run the command:

```
submit clab mr arecur <your-iiitb.org-email-address>
```