
Subject: Generating N random numbers that add to a TOTAL

Posted by [cgguido](#) on Thu, 07 Aug 2014 03:52:47 GMT

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Hi all,

I am wondering if anybody has suggestions on how to improve the function below. It seems ok for floating precision numbers.

For integers it's a different story:

It works great if $N \ll \text{TOTAL}$. When N approaches TOTAL I get a few numbers and then a bunch of zeros... Also, setting /DIFFERENT makes it run for ever if N is large. Also, the sum of res adds up $\text{TOTAL} \pm 1$, not always to TOTAL exactly...

Suggestions?

Thanks,
Gianguido

```
FUNCTION nrndaddto, n, total, integers = integers, different = different
```

```
compile_opt idl2
```

```
res = dblarr(n)
res[0] = randomu(seed, 1, /double)*(total)
```

```
FOR i = 1, n-2 DO BEGIN
    res[i] = randomu(seed, 1, /double)*(total-total(res[0:i-1], /double))
ENDFOR
res[n-1] = total-total(res[0:n-2], /double)
```

```
IF ~keyword_set(integers) THEN integers = 0
```

```
IF keyword_set(integers) THEN res = round(res)
IF keyword_set(different) THEN BEGIN
    IF n_elements(res) NE n_elements(unique(res, /sort)) THEN res = $
        nrndaddto(n, total, integers = integers, different = 1)
ENDIF
```

```
RETURN, res
END
```
