"Time" Package Tutorial

Liz Li

May 7, 2011

In this tutorial is a list of several functions included in the "Time" package for Octave and examples of how to use them. For the sake of remaining within the page limit, not all functions have been included. The package can be downloaded at http://octave.sourceforge.net/time/index.html

1 Useful Built-In Functions

Octave already has several time functions that are built upon in this package often used to better understand some of the outputs.

1.1 date

date will give the current date in the form dd-mmm-yyyy

```
date
ans=30-Apr-2011
```

1.2 datenum

datenum(*refdate*) will give the number of days since 01-Jan-0000 for the referenced date

```
datenum("02-May-2011")
ans=734625
```

2 Package Functions

The "Time" package provides additional date manipulation tools.

2.1 busdate

busdate(*refdate*) will give the datenum of the next business day from *refdate*.

busdate(*refdate, direction*) will give the datenum of the next business day if *direction*=1 (default) or of the previous business day if *direction*=-1.

```
busdate("07-May-2011")
ans=734632                    This is the datenum of Mon. May 9, 2011

busdate("07-May-2011",1)
ans=734632                    This is the datenum of Mon. May 9, 2011

busdate("07-May-2011",-1)
ans=734629                    This is the datenum of Fri. May 6, 2011
```

2.2 day

day(*Date*) returns the day of the month from a date string or a date number.

```
day(734630)                    734630 is the datenum of May 7, 2011
ans=7

day("07-May-2011")
ans=7

day("5/7/11")
ans=7
```

2.3 daysact

daysact(*D1*) calculates the number of days between *D1* and 1-Jan-0000.

daysact(*D1,D2*) calculates the number of days between *D2* and *D1*.

```
daysact("07-May-2011")
ans=734630

daysact("02-May-2011","07-May-2011")
ans=5

daysact("07-May-2011","02-May-2011")
ans=-5
```

2.4 fbusdate

fbusdate(*year, month*) returns the datenum of the first business day of the *year* and the *month*.

```
fbusdate(2011,05)
ans=734625                    This is the datenum of Mon. May 2, 2011
```

2.5 holidays

holidays(*startedate, enddate*) returns a vector of datenums that are trading holidays observed by NYSE between *startdate* and *enddate*, inclusive.

```
holidays("07-May-2011","04-Jul-2011")
ans=
     734653      This is the datenum of Memorial Day on May 30,2011
     734688      This is the datenum of Independence Day on July 4, 2011
```

2.6 isbusday

isbusday(*refdate*) returns true (1) if *refdate* is a business day and returns false (0) if it is not.

```
isbusday("07-May-2011")
ans=0

isbusday("06-May-2011")
ans=1
```

2.7 lbusdate

lbusdate(*year, month*) returns the datenum of the last business day of the *year* and *month*.

```
lbasudate(2011,04)
ans=734622                    This is the datenum of Fri. Apr. 29, 2011
```

2.8 month

month(*Date*) returns the month from a date string or a date number.

```
day(734630)                    734630 is the datenum of May 7, 2011
ans=5

day("07-May-2011")
ans=5

day("5/7/11")
ans=5
```

2.9 today

today returns the current local date as a datenum

```
today
ans=734630                          This is the datenum of May 7, 2011
```

2.10 year

year(*Date*) returns the day of the month from a date string or a date number.

```
day(734630)                        734630 is the datenum of May 7, 2011
ans=2011

day("07-May-2011")
ans=2011

day("5/7/11")
ans=2011
```

3 Exercises

1. Find Easter's date in 2012. How many days is it after the first business day in that month? How many days is it before the last business day?

2. Is datenum 734819 a business day? If not, when is the closest business day? What is the date of this business day? What is special about this day?

4 Solutions

1. April 8, 2012. 6. 22

2. No. 734818. Friday, November 11, 2011. It's symmetric (11/11/11). (Extra Credit: It's my friend, Shelley's, 22nd birthday!)

References

[1] B. Denney, *Time*, preprint (2009) available at `http://octave.sourceforge.net/time/overview.html`.

[2] J. Eaton, *GNU Octave*, preprint (2011) available at `http://www.gnu.org/software/octave/doc/interpreter/`.