Julian

INHERITS FROM Object

WRITTEN BY Charles G. Bennett

Version 1.2, , This class is in the Public Domain. No guaranties are made to its usefulness or correctness.

CLASS DESCRIPTION

The Julian Class is an Interface Builder Module to implement julian day functions.

FEATURES

· Rich set of class methods allows you to treat Julian as a function library.

· Fractional Days supported for easy time tracking and comparison.

· Instance variable and methods allow you to create lists of dates.

INSTANCE VARIABLES

Declared in Julian	double	julianDayVal

METHOD TYPES

Initialization

- (BOOL) initDay:::
- (BOOL) initDay::::::

Archiving

- read:
- write:

Converting to and from julian dates

+ (double) getCurrentDate
+ (double) julianDay:::
+ (double) julianDay::::::
+ (void) calendarDay::::
- (void) calendarDay:::::::
- getCalendarDay:::
- getCalendarDay::::::
- (double) getJulianDay:
- setJulianDay:

- setJulianDay:::
- setJulianDay::::::

Testing for valid dates

+ (BOOL) validDay:::
+ (BOOL) validDay::::::

misc

+ (void) getEasterDay:::
+ (int) dow:::
+ (int) doy:::
+ (double) wkd:::

Internal Methods None.

CLASS METHODS

getCurrentDate

\+ (double) **getCurrentDate**

Returns the julian day for the current month, day, year,hour,min, and second.
This routine calls the unix localTime function.

getCalendarDay:::

\- **getCalendarDay**
:(int) day
:(int) month
:(int) year

Returns the calendar date for the instance variable .

getCalendarDay::::::

\- **getCalendarDay**
:(int) day
:(int) month
:(int) year
:(int) hour
:(int) min
:(int) sec

Returns the calendar date and time for the instance variable .

getEasterDay

\+ (void) **getEasterDay:**(int) year
:(int *) day
:(int *) month

Returns the day and month of Easter. Valid for 1900-2099
Submitted and written by kjell@oops.se (Kjell_Nilsson).
Thanks.

julianDay:::

+ (double) **julianDay**
  :(int) day
  :(int) month
  :(int) year

Returns the julian day for the given month day and year;

julianDay::::::

+ (double) **julianDay**
  :(int) day
  :(int) month
  :(int) year
  :(int) hour
  :(int) min
  :(int) sec

Returns the julian day and fractional day for the given month, day, year,
hour, min, and second.

calendarDay::::

+ (void) **calendarDay**
  :(double) julian
  :(int*) day
  :(int*) month
  :(int*) year

Returns the month, day, and year for the given julian day.

calendarDay:::::::

+ (void) **calendarDay**
  :(double) julian
  :(int*) day
  :(int*) month
  :(int*) year
  :(int*) hour
  :(int*) min
  :(int*) sec

Returns the month, day, year, hour, minute, and second for the given julian day and fractional day.

validDay:::

+ (BOOL) **validDay**

  :(int) day
  :(int) month
  :(int) year

Returns YES if the day month and year are valid, NO otherwise.

validDay::::::

+ (BOOL) **validDay**

:(int) day
:(int) month
:(int) year
:(int) hour
:(int) min
:(int) sec

This routine extends the testing to include hour, min and seconds.

dow:

+ (int) **dow:**(long) julian

This method **returns** the Day Of Week value. The Day Of Week is defined
as 0 = Sunday, 1=Monday .... 6=Saturday

doy:::

+ (int) **doy**

:(int) day
:(int) month
:(int) year

This method **returns** the Day Of Year value. The Day Of Year is defined
as 1= Jan 1

wkd:::

+ (double) **wkd**
:(int) day
:(int) month
:(int) year

This method **returns** the number of weekdays since some time in the past. Use this method to find the number of "workdays" between dates.

NOTE: a day is defined as 12:00 NOON to 12:00 NOON so there is .5 days difference between Friday and Saturday of the same week.

INSTANCE METHODS

- **initDay:::**

- (BOOL) **initDay**
:(int) month
:(int) day
:(int) year

This method will initialize the instance variable to the given date.
It returns **YES** if the date is valid or **NO** if not. If the date is invalid
the instance variable is **NOT** changed.

- **initDay::::::**

- (BOOL) **initDay**
:(int) month
:(int) day
:(int) year
:(int) hour
:(int) min
:(int) sec

This method will initialize the instance variable to the given date.
It returns **YES** if the date is valid or **NO** if not. If the date is invalid
the instance variable is **NOT** changed.

- **read:**(NXTypedStream *)*stream*

- **read**

Reads the Julian instance varible from *stream.* A **read:** message is sent
during unarchiving. You never invoke this method directly.

- **write:**

- **write:**(NXTypedStream *)*stream*

Writes the Julian instance varible to *stream.* A **write:** message is sent
during archiving. You never invoke this method directly.

- **getJulianDay**

- (double) **getJulianDay**

This method **returns** the value of the julian day instance variable.

- **setJulianDay:**

- (BOOL) **setJulianDay:**(double) day

This method **sets** the value of the julian day instance variable.
Caution! Use this with care since this directly sets the instance variable. Always returns **YES**

- **setJulianDay:::**

  - (BOOL) **setJulianDay**
    :(int) month
    :(int) day
    :(int) year

  This method **sets** the value of the julian day instance variable. Using the month, day and year parameters. Returns **YES** if the date was valid, **NO** if not., and the instance variable is NOT changed

- **setJulianDay::::::**

  - (BOOL) **setJulianDay**
    :(int) month
    :(int) day
    :(int) year
    :(int) hour
    :(int) min
    :(int) sec

  This method **sets** the value of the julian day instance variable. Using the month, day, year, hour, min, and sec parameters. Returns **YES** if the date was valid, **NO** if not., and the instance variable is NOT
  changed

CONSTANTS AND DEFINED TYPES

None.