

## Julian

INHERITS FROM                      Object

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Version 1.2, Sun Jun 20 1993, 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 variable from *stream*. A **read:** message is sent during unarchiving. You never invoke this method directly.

### - **write:**

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

Writes the Julian instance variable 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.