

Introduction of Date and Calendar classes

1. Why we have different classes?

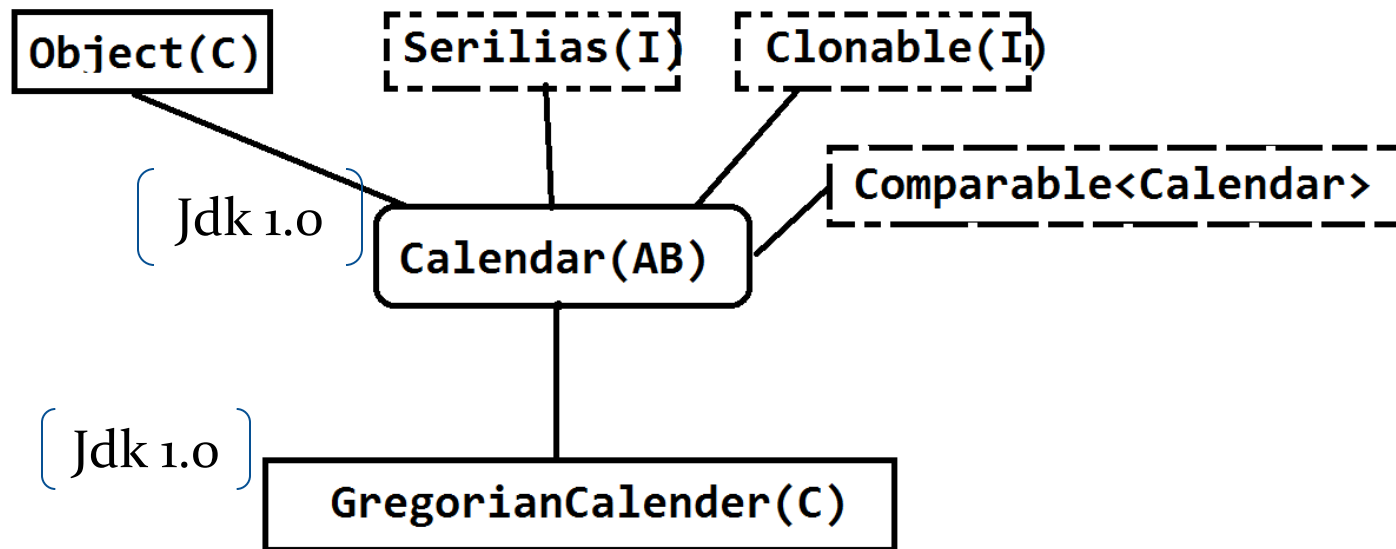
Commonly Used Terminologies

- ❖ Time Zone
- ❖ Gregorian Calendar
- ❖ Buddhist calendar
- ❖ Base Calendar
- ❖ Epoch
- ❖ Era
- ❖ Julian Calendar
- ❖ Timestamp

Types of Calendar and Date Classes

- Calendar(AB) class
- GregorianCalendar(C) class
- java.util.Date(C) class
- java.sql.Date(C) class
- Format(AB) class
- DateFormat(AB) class
- SimpleDateFormat(C) class

Gregorian Calendar Class



Commonly used Methods in Calendar

- `get(Calendar.DAY_OF_WEEK)`: returns 1 (`Calendar.SUNDAY`) to 7 (`Calendar.SATURDAY`).
- `get(Calendar.YEAR)`: year
- `get(Calendar.MONTH)`: returns 0 (`Calendar.JANUARY`) to 11 (`Calendar.DECEMBER`).
- `get(Calendar.DAY_OF_MONTH)`, `get(Calendar.DATE)`: 1 to 31
- `get(Calendar.HOUR_OF_DAY)`: 0 to 23
- `get(Calendar.MINUTE)`: 0 to 59
- `get(Calendar.SECOND)`: 0 to 59
- `get(Calendar.MILLISECOND)`: 0 to 999
- `get(Calendar.HOUR)`: 0 to 11, to be used together with `Calendar.AM_PM`.
- `get(Calendar.AM_PM)`: returns 0 (`Calendar.AM`) or 1 (`Calendar.PM`).
- `get(Calendar.DAY_OF_YEAR)`: 1 to 366
- `get(Calendar.ZONE_OFFSET)`: GMT offset value of the time zone.

Calendar has these setters and operations

- `void set(int calendarField, int value)`
- `void set(int year, int month, int date)`
- `void set(int year, int month, int date, int hour, int minute, int second)`
- `void add(int field, int amount)`: Adds or subtracts the specified amount of time to the given calendar field, based on the calendar's rules.
- `void roll(int calendarField, int amount)`: Adds the specified (signed) amount to the specified calendar field without changing larger fields.

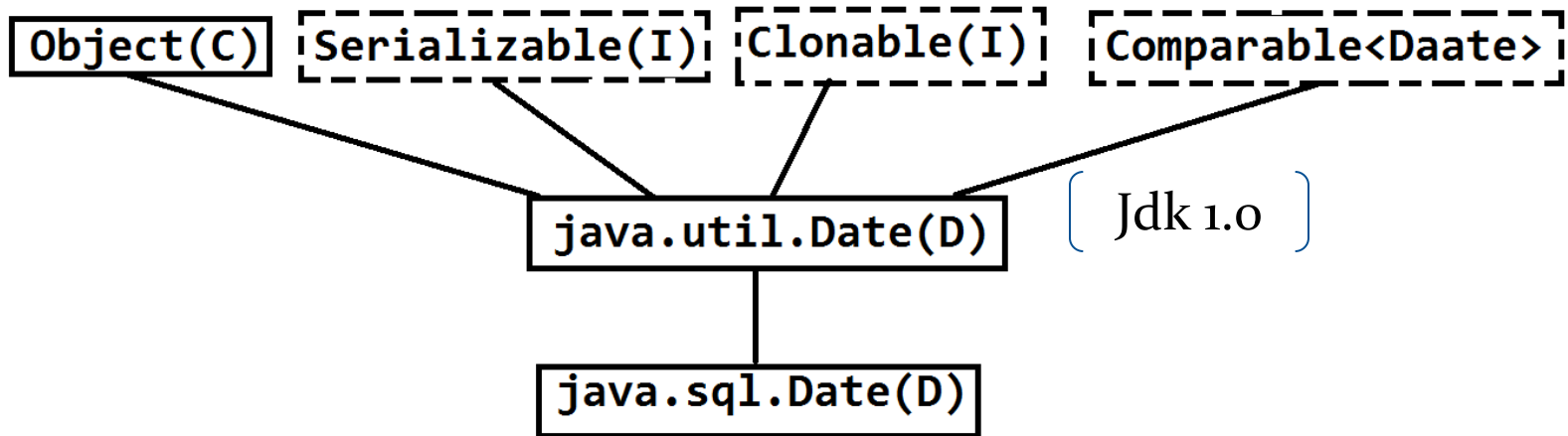
Other frequently-used methods in Calendar class

- `Date getTime()`: return a Date object based on this Calendar's value.
- `void setTime(Date date)`
- `long getTimeInMillis()`: Returns this Calendar's time value in milliseconds.
- `void setTimeInMillis(long millis)`
- `void setTimeZone(TimeZone value)`

GregorianCalendar has the following constructors

- `GregorianCalendar()`: using the current time, with the default time zone and locale.
- `GregorianCalendar(int year, int month, int dayOfMonth)`: with the default time zone and locale.
- `GregorianCalendar(int year, int month, int dayOfMonth, int hourOfDay, int minute, int second)`
- `GregorianCalendar(TimeZone zone, Locale aLocale)`: using current time.
- `GregorianCalendar(TimeZone zone)`
- `GregorianCalendar(Locale aLocale)`

Java.sql & util Date class



Java.util.Date

Mainly used Constructors

- **public Date()**//Time in milliseconds
- **public Date(long date)**

Methods

public long getTime()

public void setTime(long time)

public String toString()

Java.sql.Date

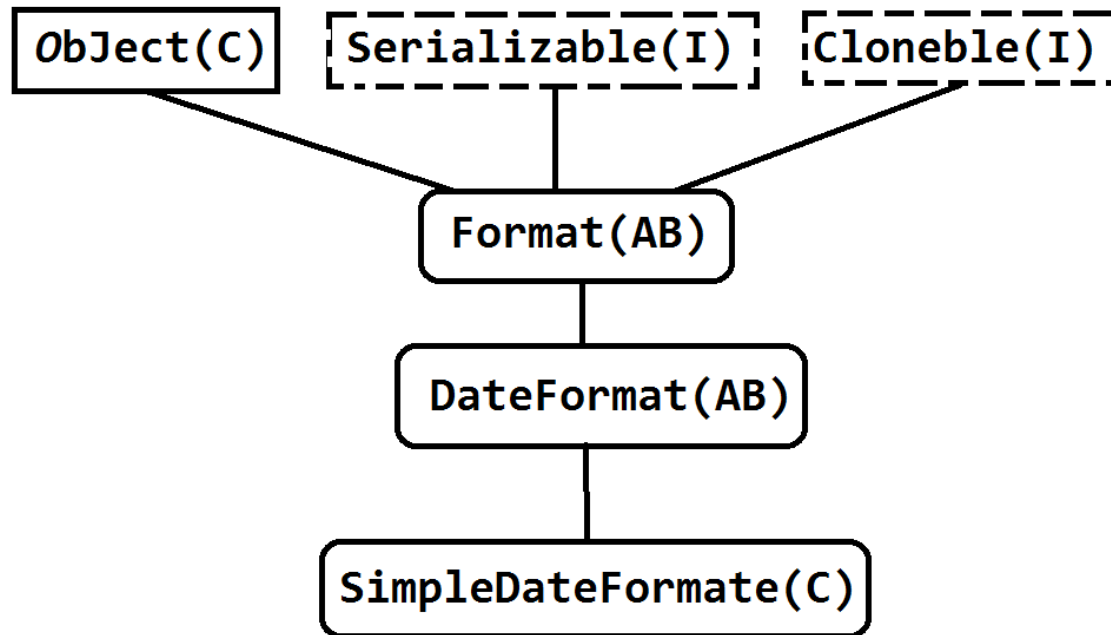
Constructors In sql.Date

- `public Date(long date)` //calls the super(date)

Methods

- `public void setTime(long date)` //super.setTime(date)
- `static Date valueOf(String date)` //returns sql date object for the given String.

SimpleDateFormat



Simple DateFormat format codes

Character	Description	Example
G	Era designator	AD
Y	Year in four digits	2001
M	Month in year	July or 07
d	Day in month	10
h	Hour in A.M./P.M. 1 12	12
H	Hour in day 0 23	22
m	Minute in hour	30
S	Second in minute	55
s	Millisecond	234
E	Day in week	Tuesday
D	Day in year	360
w	Week in year	40
W	Week in month	1
a	A.M./P.M. marker	PM
k	Hour in day 1 24	24
K	Hour in A.M./P.M. 0 11	10
Z	Time zone	Eastern Standard Time
'	Escape for text	Delimiter

SimpleDateFormat class

SimpleDateFormat constructors

- There are four constructors that you can use so as to create
- **SimpleDateFormat()**
The simplest constructor which creates a SimpleDateFormat with a default pattern of date and a default locale.
- **SimpleDateFormat(String pattern)**
The constructor which creates a SimpleDateFormat with a given pattern and a default locale.
- **SimpleDateFormat(String pattern, DateFormatSymbols formatSymbols)**
Constructs a SimpleDateFormat with the given pattern and specific date format symbols..
- **SimpleDateFormat(String pattern, Locale locale)**
Constructs a SimpleDateFormat with the given pattern and a specific locale.