PDP
IT-ACADEMY

Java Time API

PDP
IT-ACADEMY

Reja:

1. LocalDate
2. LocalTime
3. LocalDateTime
4. ZonedDateTime
5. Period va Duration
6. Date va Time ni parse qilish va formatlash

java.time API klasslari

- **LocalDate –** sana;
- **LocalTime –**vaqt;
- **LocalDateTime –** sana va vaqt;
- **ZonedDateTime –**sana va vaqt time zone bilan;
- **DateTimeFormatter –** sanani stringa formatlash va aksincha
- **ChronoUnit –** vaqtning xronologik o’chov birliklari
- **Instant – Unix epoch time** (полночь 1 января 1970 UTC) dan boshlab millisekundlar soni;
- **DayOfWeek** – hafta kuni
- **MonthDay-** oy kuni
- **Month** -oy
- **Duration –** sekund va nanosekundlardagi davomiylik;
- **Period –** kun, oy va yillardagi oraliq;
- **TemporalAdjuster –** Sanani korrektirovka qiladi(masalan: keyingi dushanba sanasini olish mumkin);

PDP
IT-ACADEMY

LocalDate

LocalDate – ISO formatidagi (yyyy-MM-dd) sanani ifodalaydi

LocalDate localDate = LocalDate.now();

LocalDate localDate = LocalDate.*of*(2020, 07, 21);

LocalDate localDate = LocalDate.*parse*("2015-02-20");

PDP IT-ACADEMY

Methodlari

- `static LocalDate now()`: joriy sana objectini beradi;
- `static LocalDate of(int year, int month, int day)`:berilgan yil,oy va kunli sana objectini beradi;
- `static LocalDate parse(CharSequence text)`: berilgan matnli pattern(format)dagi sana objectini beradi;
- `int getYear()`: yilni olish;
- `int getMonthValue()`: oyni olish;
- `int getDayOfMonth()`: oyning kunini olish (1 dan 31 gacha bo'lgan qiymat);
- `int getDayOfYear()`: yilning kunini olish (1 dan 366 gacha bo'lgan qiymat);
- `DayOfWeek getDayOfWeek()`: hafta kuni objectini olish;
- `LocalDate plusDays(int n)`:sanaga berilgan miqdordagi kunni qo'shish;
- `LocalDate plusWeeks(int n)`: sanaga berilgan miqdordagi haftani qo'shish ;
- `LocalDate plusMonths(int n)`: sanaga berilgan miqdordagi oyni qo'shish;
- `LocalDate plusYears(int n)`: sanaga berilgan miqdordagi yilni qo'shish;
- `LocalDate minusDays(int n)`: sanadan berilgan miqdordagi kunni olsh;
- `LocalDate minusMonths(int n)`: sanadan berilgan miqdordagi oyni olsh;
- `LocalDate minusWeeks(int n)`: sanadan berilgan miqdordagi haftani olsh;
- `LocalDate minusYears(int n)`: sanadan berilgan miqdordagi yilni olsh;

PDP IT-ACADEMY

Misollar

```
LocalDate tomorrow = LocalDate.now().plusDays(1);

LocalDate previousMonthSameDay = LocalDate.now().minus(1, ChronoUnit.MONTHS);

DayOfWeek sunday = LocalDate.parse("2016-06-12").getDayOfWeek();

int twelve = LocalDate.parse("2016-06-12").getDayOfMonth();

boolean leapYear = LocalDate.now().isLeapYear();

boolean notBefore = LocalDate.parse("2016-06-12").isBefore(LocalDate.parse("2016-06-11"));

boolean isAfter = LocalDate.parse("2016-06-12").isAfter(LocalDate.parse("2016-06-11"));
```

PDP
IT-ACADEMY

LocalTime

LocalTime –vaqtni o’zini sanasiz ifodalaydi

```
LocalTime localTime = LocalTime.now();
LocalTime sixThirty = LocalTime.parse("06:30");
LocalTime sixThirty = LocalTime.of(6, 30);
```

PDP IT-ACADEMY

Konstantalari

- `static LocalTime MAX`: vaqtning maksimal qiymati;
- `static LocalTime MIDNIGHT`:yarim kechasi
- `static LocalTime MIN`: kunning minimal qiymati
- `static LocalTime NOON`: kunning yarmi

Methodlari

PDP IT-ACADEMY

- `static LocalTime now()`: joriy vaqt objectini beradi;
- `static LocalTime of(int hour,int minut,int second)`:berilgan soat,minut va sekund objectini beradi;
- `static LocalTime parse(CharSequence text)`: berilgan matnli pattern(format)dagi vaqt objectini beradi;
- `LocalTime withHour(int hour)`:berilgan soatli vaqt objectini beradi;
- `LocalTime withMinut(int hour)`:berilgan minutli vaqt objectini beradi
- `LocalTime withSecond(int hour)`:berilgan sekundli vaqt objectini beradi
- `LocalTime withNano(int hour)`:berilgan nanosekundli vaqt objectini beradi
- `LocalTime truncateTo(TemporalUnit unit)`:ko'rsatilgan birlik bo'yicha vaqtni yaxtlitlash
- `int getHour()`: soatni olish;
- `int getMinut()`: minutni olish;
- `int getSecond()`: sekundni;
- `int getNano()`: nanosekundni olish;
- `LocalTime plus (long amountToAdd, TemporalUnit unit)`:vaqtning ko'rsatilgan birligiga berilgan qiymatni qo'shish;
- `LocalTime minus(long amountToAdd, TemporalUnit unit)`:vaqtning ko'rsatilgan birligidan berilgan qiymatni ayrish;

PDP IT-ACADEMY

Misollar

- ZoneId zone1 = ZoneId.of("Asia/Tashkent");
- ZoneId zone2 = ZoneId.of("Asia/Tokyo");
- LocalTime time1 = LocalTime.now(zone1);
- System.out.println(“Uzbekistan Time Zone: "+time1);
- LocalTime time2 = LocalTime.now(zone2);
- System.out.println("Japan Time Zone: "+time2);
- long hours = ChronoUnit.HOURS.between(time1, time2);
- System.out.println("Hours between two Time Zone: "+hours);
- long minutes = ChronoUnit.MINUTES.between(time1, time2);
- System.out.println("Minutes between two time zone: "+minutes);
- System.out.println(a.get(ChronoField.MINUTE_OF_DAY));

PDP
IT-ACADEMY

LocalDateTime

LocalDate – sana va vaqtni kombinasiyasi

```
LocalDateTime localDateTime = LocalDateTime.now();
```

Methodlari

PDP IT-ACADEMY

- `static LocalDateTime now()`: joriy vaqt objectini beradi;
- `static LocalDateTime of(int year, int month, int dayOfMonth, int hour, int minute, int second)`: berilgan soat,minut va sekund objectini beradi;
- `static LocalDateTime parse(CharSequence text)`: berilgan matnli pattern(format)dagi objectini beradi;
- `LocalDateTime LocaleTime.atDate(LocalDate date);`
- `LocalDateTime LocaleDate.atTime(LocalTime time);`
- `LocalDateTime LocaleDate.atStartOfDay();`

PDP IT-ACADEMY

Misollar

- LocalDateTime localDateTime = LocalDateTime.*of*(2015, Month.*FEBRUARY*, 20, 06, 30);
- LocalDateTime localDateTime = LocalDateTime.*parse*("2015-02-20T06:30:00");
- LocalDateTime tomorrow = localDateTime.plusDays(1);
- LocalDateTime twoHoursAgo = localDateTime.minusHours(2);
- Month month = localDateTime.getMonth();
- System.out.println(a.get(ChronoField.DAY_OF_WEEK));
- System.out.println(a.get(ChronoField.DAY_OF_YEAR));
- System.out.println(a.get(ChronoField.DAY_OF_MONTH));
- System.out.println(a.get(ChronoField.HOUR_OF_DAY));
- System.out.println(a.get(ChronoField.MINUTE_OF_DAY));

PDP IT-ACADEMY

ZonedDateTime API

ZonedDateTime – Date, Time TimeZone lar kombinasiyasi

```
LocalDateTime localDateTime= LocalDateTime.now();
ZoneId zoneId = ZoneId.of("Europe/Paris");
Set<String> allZoneIds = ZoneId.getAvailableZoneIds();
ZonedDateTime zonedDateTime = ZonedDateTime.of(localDateTime, zoneId);
```

PDP IT-ACADEMY

Period

Berilgan sanani o’zgartirish va ikkita sana farqini aniqlashda qo’llaniladi

```
LocalDate initialDate = LocalDate.parse("2007-05-10");
LocalDate finalDate = initialDate.plus(Period.ofDays(5000));
int days = Period.between(finalDate, initialDate).getDays();
long months = ChronoUnit.MONTHS.between(finalDate , initialDate);
long years = ChronoUnit.YEARS.between(finalDate , initialDate);
```

PDP IT-ACADEMY

Duration

Period ga o’xshash, Time bilan ishlaydi.

```
LocalTime initialTime = LocalTime.of(6, 30, 0);

LocalTime finalTime = initialTime.plus(Duration.ofSeconds(30));

long seconds = Duration.between(finalTime, initialTime).getSeconds();

long seconds1 = ChronoUnit.SECONDS.between(finalTime, initialTime);

long minutes = ChronoUnit.MINUTES.between(finalTime, initialTime);

long houres = ChronoUnit.HOURS.between(finalTime, initialTime);
```

Parsing and formatting Dates and Time

```
LocalDateTime localDateTime = LocalDateTime.of(2015, Month.JANUARY, 25, 6, 30);
String localDateString = localDateTime.format(DateTimeFormatter.ISO_DATE);
String localDateTimeString = localDateTime.format(DateTimeFormatter.ISO_DATE_TIME);
System.out.println(localDateTime.format(DateTimeFormatter.ofPattern("yyyy/MM/dd")));
System.out.println(localDateTime
        .format(DateTimeFormatter.ofLocalizedDateTime(FormatStyle.MEDIUM)
                .withLocale(Locale.UK)));
```

```
DateTimeFormatter formatter = DateTimeFormatter.ofPattern("MMM d yyyy");
// use this format to get always two digits for the day
DateTimeFormatter f1 = DateTimeFormatter.ofPattern("MMM dd yyyy");
LocalDate date = LocalDate.of(2015, Month.JULY, 1);
System.out.println(date.format(formatter));
System.out.println(date.format(f1));
LocalDate d2 = LocalDate.of(2015, Month.JULY, 15);
System.out.println(d2.format(formatter));

formatter = DateTimeFormatter.ofPattern(“yyyy-MM-dd");
String dateString = "2020-02-16";
LocalDate localDate = LocalDate.parse(dateString,formatter);
```

PDP
IT-ACADEMY

E’TIBORINGIZ UCHUN RAXMAT