



# Assignment # 4

#### **Objectives:**

- 1. To create user interfaces **UI** using frames, panels, and simple GUI components.
- 2. To understand the role of **layout managers** and use the **FlowLayout**, **GridLayout**, and **BorderLayout** managers to lay out components in a container.
- 3. To get a taste of event-driven programming.
- 4. To define handler classes, register handler objects with the source object, and write the code to handle events.
- 5. To define handler classes using inner classes.
- 6. To define handler classes using anonymous inner classes.

#### **Specification**

Submission: through Ritaj.

What to submit: A compressed file of your own well-structured and well-commented JAVA classes.

### Due Date: <u>Thursday</u> 1/1/2015.

#### Tasks

# Task 1: Calculator UI

Write the necessary JAVA code to create the following calculator interface (**ONLY** the interface).<sup>1</sup>

alculet				X
7	8	9	1	
4	5	6	*	
1	2	3	-	
0		С	+	

<sup>&</sup>lt;sup>1</sup> H.W. Bonus: make the calculator function as expected with good exception handling.

# Task 2: My Interactive Calendar

Build an interactive functional calendar similar to the following one:

Month/Y	ear Cont	rol		Co	lor Control			
Month:		Dec 🔻				Re	Red	
	ľ			Fon	t Color:	🔾 Gr	een	
Year:		2014	-			O Bli	ie	
<<	< Dec 2014							
Sun	Mon	Mon Tue		ed	Thu	Fri	Sat	
	1	2		3	4	5	6	
7	8	9	1	0	11	12	13	
14	15	16	1	7	18	19	20	
21	22 23		24		25	26	27	
28	29	30	3	1				

Notes:

- At first, the calendar will display the current month information and highlight the current date (e.g. in the previous figure the current month was Dec, 2014, and the current day when this image was taken was 13).
- The UI interaction works as follow:

Click

1. Click once on the button will move 1 month forward. (e.g. if the current month is Dec, 2014 after clicking the button it will move to Jan, 2015):

Month:		Jan 👻				Red	
Year:		2015 Font Color:					
<<		Jan 2015					
Sun	Mon	on Tue	W	Wed Thu		Fri	
					1	2	
4	5	6	7	r )	8	9	
11	12	13	1	4 1	5	16	
18	19	20	2	1 2	2	23	
25	26	27	2	8 2	9	30	

button again will move another month forward and so on.

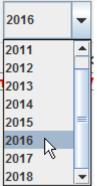
2. Click once on the button will move 1 month backward. (e.g. if the current month is Dec, 2014 after clicking the button it will move to Nov, 2014).

r Contro	bl		Color Control				
N	Nov				Re	Red	
F			Font	Color:	O Green		
2	014	-			O Blue		
K Nov 2014							
Mon	Tue	W	ed	Thu	Fri	Sat	
						1	
3	4		5	6	7	8	
10	11	1	2	13	14	15	
17	18	1	9	20	21	22	
24	25	2	26	27	28	29	
	N 2 Mon 3 10 17	Nov 2014 Mon Tue 3 4 10 11 17 18	Nov 2014 Nov Mon Tue W 3 4 10 11 1 17 18 1	Nov 2014 Font 2014 Nov 2014 Mon Tue Wed 3 4 5 10 11 12 17 18 19	Nov         Image: Four Color:           2014         Image: Four Color:           Nov 2014         Image: Four Color:           Mon         Tue         Image: Wed           3         4         5         6           10         11         12         13           17         18         19         20	Nov         Image: Constraint of the state of the s	



3. Select a new month from combo-box will move to the selected month:

Month/Y	ear Cont	trol		Color Control				
Month:		Aug 🗸 👻		Font C	alari	Red		
/ear: 2014 🔻			-	FOREC	0101:		<ul> <li>Green</li> <li>Blue</li> </ul>	
<<			2014			>>		
Sun	Mon	Tue	W	ed	Thu	Fri	Sat	
						1	2	
3	4	5	(	5	7	8	9	
10	11	1 12		3	14	15	16	
17	18	18 19		0	21	22	23	
24	25	25 26		27 28		29	30	
31								



4. Select a new year from

combo-box will move to the selected year:

Month/Y	ear Cont	rol		Color Contr	ol		
Month:		Feb	-		Re	d	
	l			Font Color:	O Gr	O Green	
Year:		2016	-			ie	
<<		Feb 2016					
Sun	Mon	Tue	We	d Thu	Fri	Sat	
	1	2	3	4	5	6	
7	8	9		11	12	13	
14	15	16	17	18	19	20	
21	22	23	24	25	26	27	
28	29						

5. Select a new font-color from the color control panel will change the calendar's color:

Month/Ye	ear Con	trol	Color Control					
Month:		Feb 👻				1000	O Red	
Year:		2016	•	Fon	t Color:	ି ଜ କ୍ <mark>ୱା</mark> ଞ୍ଚ		
<<	<< Feb 2016							
Sun	Mon	Tue	W	ed	Thu	Fri	Sat	
	1	2	3	3	4	5	6	
7	8	9	1	0	11	12	13	
14	15	16	1	7	18	19	20	
21	22	23	2	4	25	26	27	
28	29							

6. The My-Calendar interface should be integrated, i.e. clicking the buttons

and

has to update the calendar and the combo-boxs in the month/year control panel accordingly.

Tip: you may use the java GregorianCalendar<sup>2</sup> class to handle calendar specific operations.

# Good Luck!

<sup>&</sup>lt;sup>2</sup> http://docs.oracle.com/javase/7/docs/api/java/util/GregorianCalendar.html