Faculty of Computers, Informatics and Microelectronics

Technical University of Moldova

WINDOWS PROGRAMMING (ANDROID)

Laboratory work #3

Basics of Working with Mouse. GDI Primitives. Bezier Curve.

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1 Purpose of the laboratory

Gain knowledge about basics of Working with Mouse, GDI Primitives, Bezier Curve.

2 Laboratory Work Requirements

– **Basic Level (grade 5 - 6) you should be able to:**

a) Draw 5 lines of different colors and weights

b) Draw 2 Bezier curves

c) Draw 4 plane objects (circle, oval, rectangle, square) of different colors, weights, filled and not

d) Draw 2 different objects using mouse

– **Normal Level (grade 7 - 8) you should be able to:**

a) Realize the tasks from *Basic Level*.

b) Draw a custom bitmap image

c) Fill 2 object with gradient

d) Hook keyboard input. Add 2 different keyboard combinations that will change mouse ability to draw objects

e) Draw a Bezier curve using mouse

– **Advanced Level (grade 9 - 10) you should be able to:**

a) Realize the tasks from *Normal Level*.

b) Zoom in and out application working area using keyboard or mouse wheel

c) Use mouse as an eraser with adjustable width

– **for Bonus Point Tasks :**

a) Realize the task with mouse eraser for all 3 cases listed above. In order to choose one of them, add 3 buttons/icons or check boxes.

3 Laboratory work implementation

3.1 Tasks and Points

a) Draw 5 lines of different colors and weights

b) Draw 2 Bezier curves

c) Draw 4 plane objects (circle, oval, rectangle, square) of different colors, weights, filled and not

d) Draw 2 different objects using mouse

e) Draw a custom bitmap image

f) Fill 2 object with gradient

g) Hook keyboard input. Add 2 different keyboard combinations that will change mouse ability to draw objects

h) Draw a Bezier curve using mouse

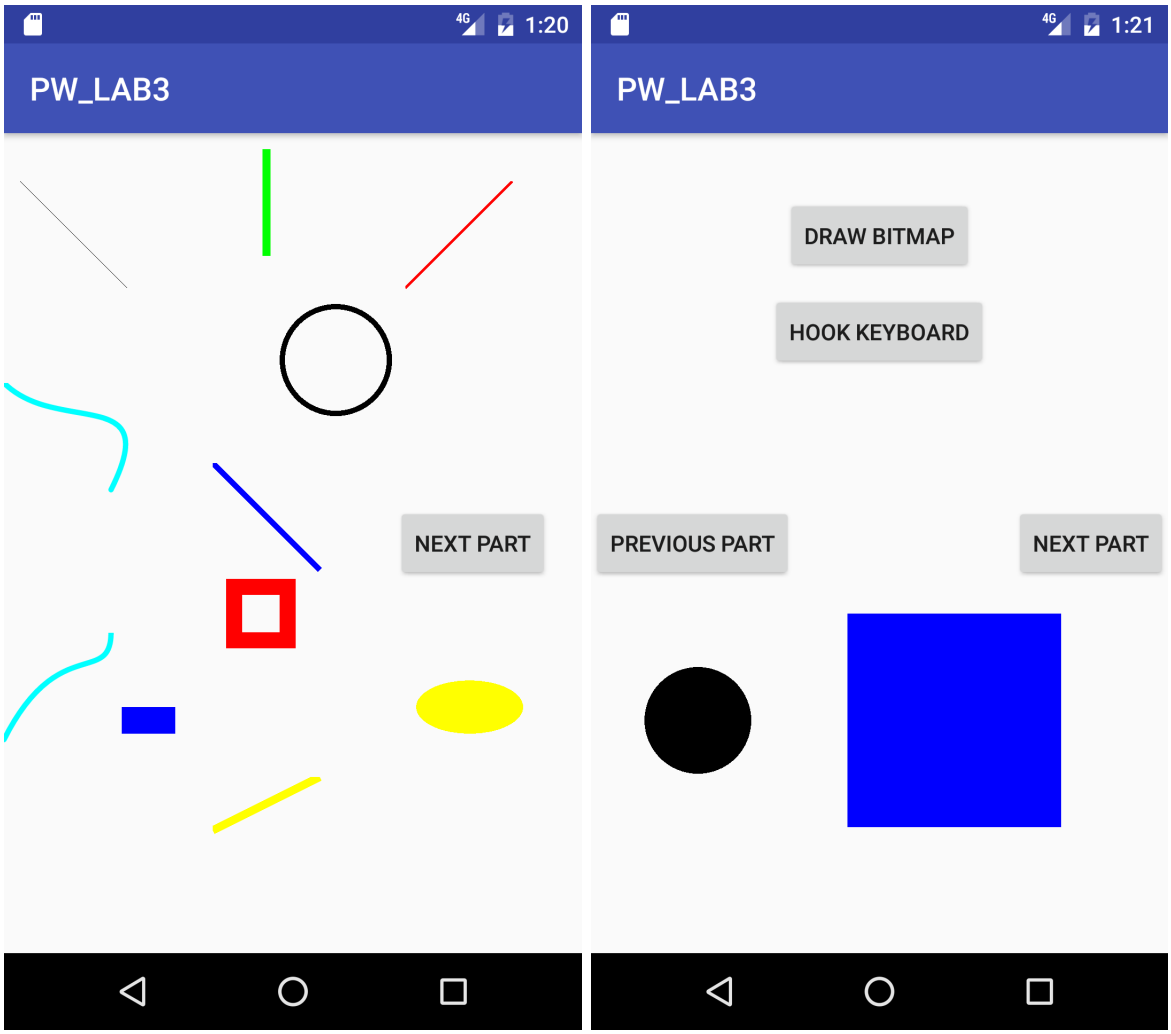
i) Use mouse as an eraser with adjustable width

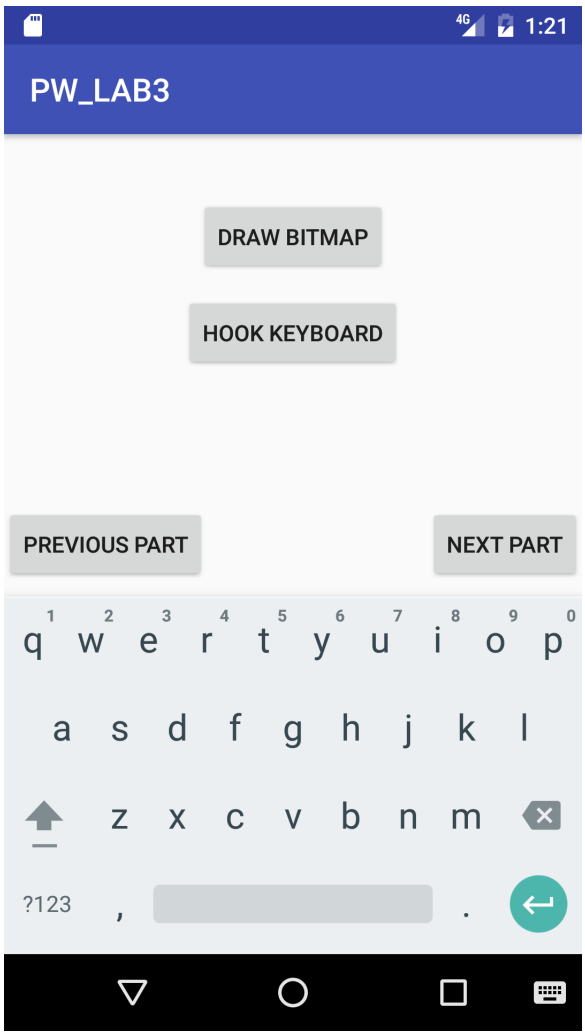
3.2 Laboratory work analysis

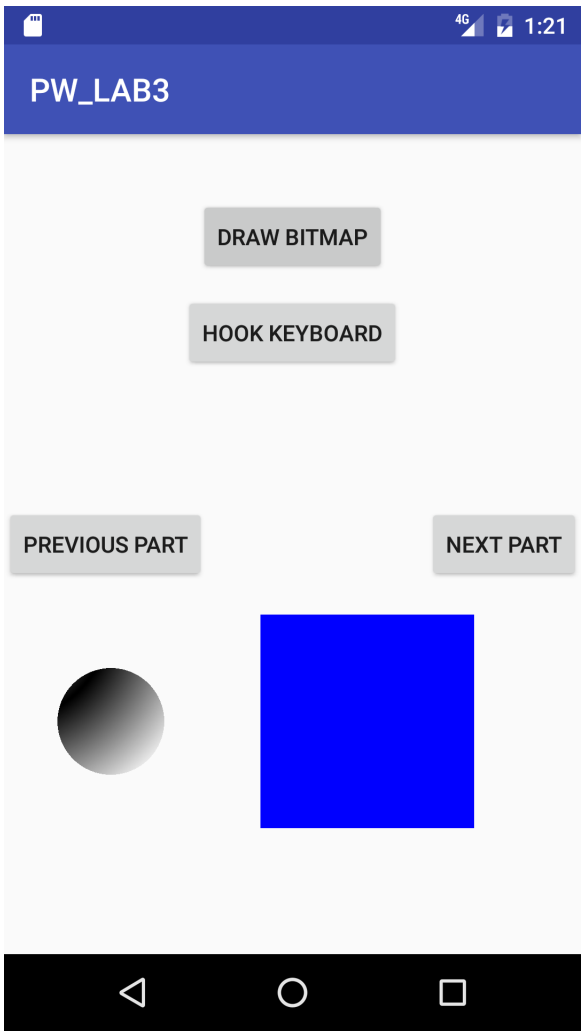
Link to my GitHub repository :
`https://github.com/Tolea86/WP_ANDROID/tree/master/LAB_3/PW_LAB3`

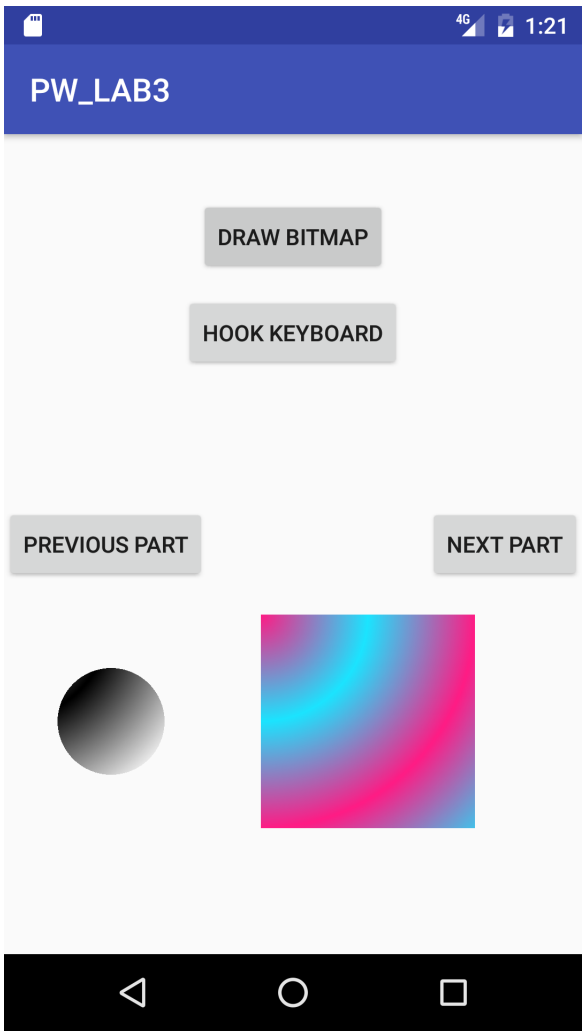
My application has following features : it has 3 main views, first Main View is the basic view, which contains 5 lines of different colors and weights and positioned differently, 2 Bezier curves, 4 plane objects (circle, oval, square and rectangle), and a button "Next Part" which directs to the next part of the app. The next view is Normal View with 2 objects first without a gradient and 4 buttons, Draw Bitmap, Hook Keyboard, Previous Part and Next Part. Previous Part button directs to Basic Activity, Next Part to Advanced Activity. Clicking on Draw Bitmap will draw the Bitmap of the current screen as if making screen shot by drawing it pixel by pixel. Clicking on Hook Keyboard will open the keyboard. Clicking the button "C" (from circle) will make the circle from the view appear with gradient. Clicking the button "R" will make the rectangle from the view appear with gradient. In Advanced Activity we have 5 buttons. One setting the mouse to brush, other to eraser, 3 buttons to control the size of the brush. And white square at the bottom is our draw section.

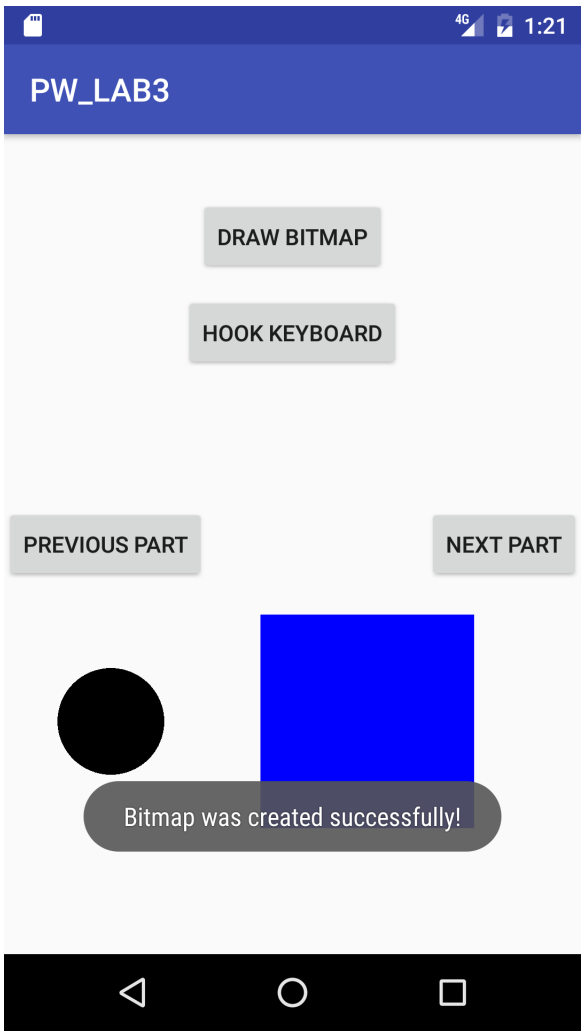
3.3 Prove your work with screens

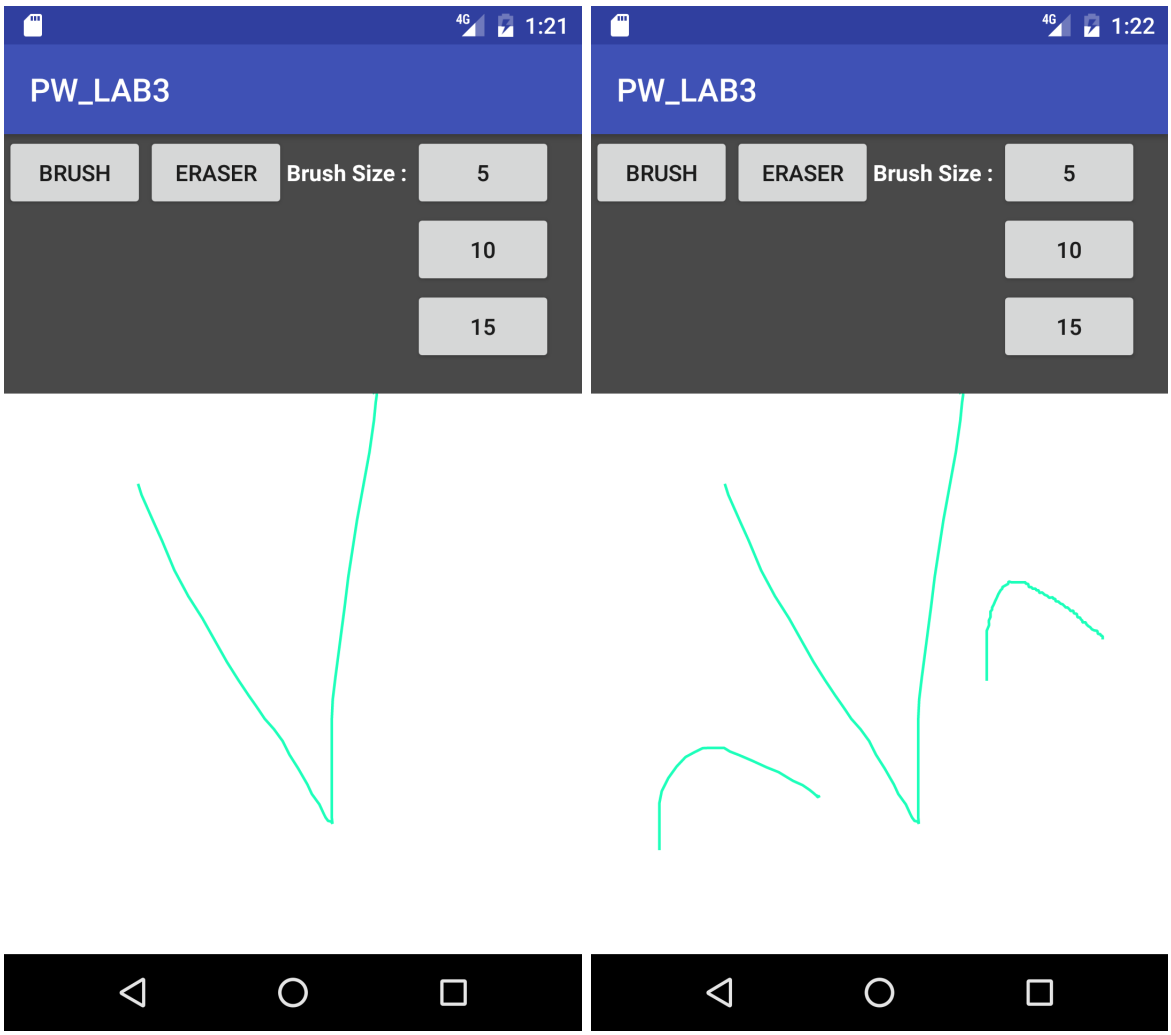


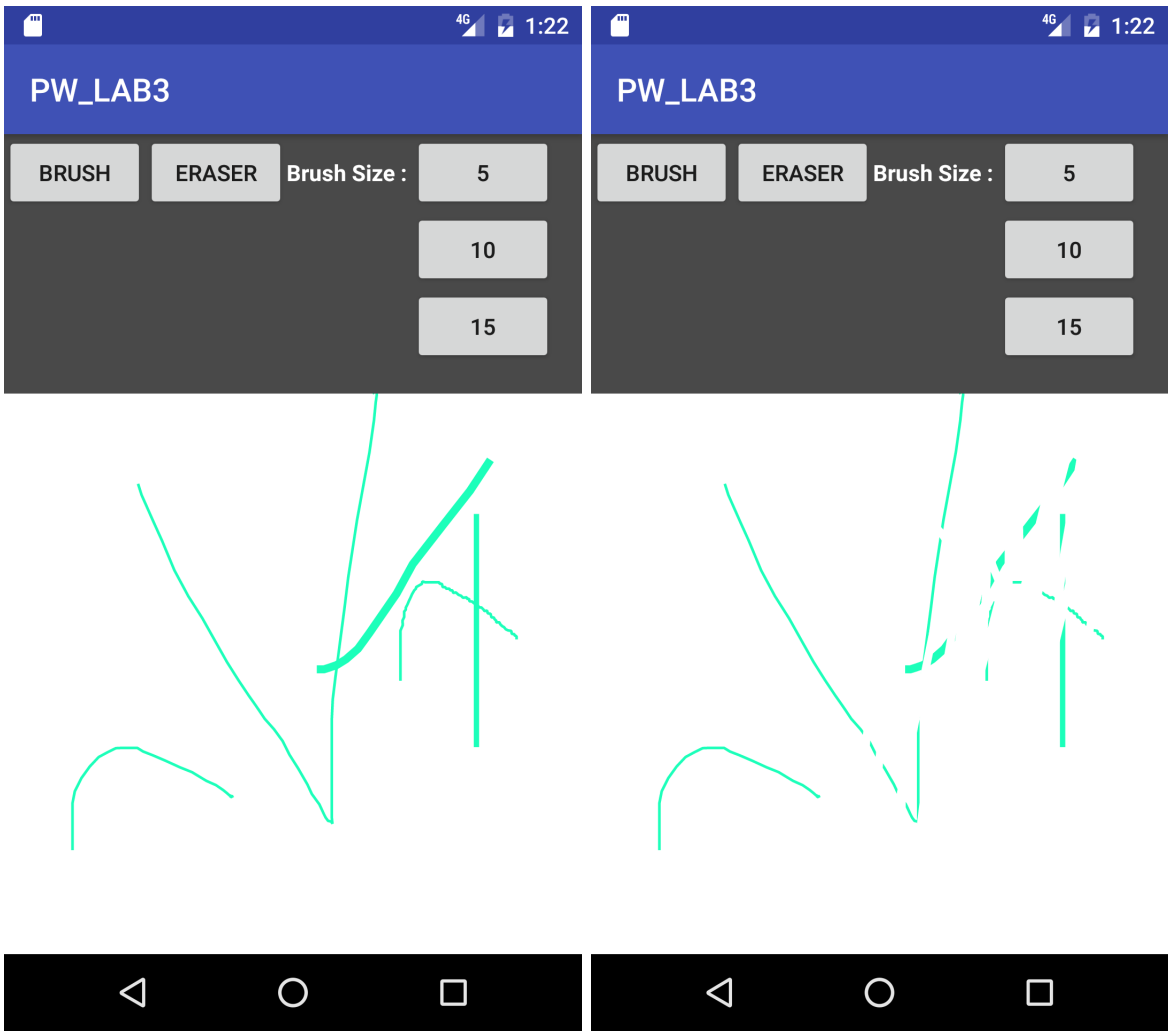

1:21
PW_LAB3
DRAW BITMAP
HOOK KEYBOARD
PREVIOUS PART
NEXT PART
q w e r t y u i o p
a s d f g h j k l
z x c v b n m
?123
,
.


1:21
PW_LAB3
DRAW BITMAP
HOOK KEYBOARD
PREVIOUS PART
NEXT PART


1:21
PW_LAB3
DRAW BITMAP
HOOK KEYBOARD
PREVIOUS PART
NEXT PART


1:21
PW_LAB3
DRAW BITMAP
HOOK KEYBOARD
PREVIOUS PART
NEXT PART
Bitmap was created successfully!


1:21
PW_LAB3
BRUSH
ERASER
Brush Size :
5
10
15
1:22
PW_LAB3
BRUSH
ERASER
Brush Size :
5
10
15


1:22
PW_LAB3
BRUSH
ERASER
Brush Size :
5
10
15
1:22
PW_LAB3
BRUSH
ERASER
Brush Size :
5
10
15

Conclusions

In this laboratory work we've studied the GDI Primitives and Bezier Curves. We have worked with mouse and keyboard. We have developed an app which draws 5 lines, 2 bezier curves, 4 plane objects. With 2 filled objects with gradient, make different actions on keyboard interactions, made possible to draw with mouse and even made the possibility to use the mouse as an eraser.

References

1 Android Developers Guide, *official page*, https://developer.android.com/guide/index.html

2 StackOverflow, *official page* , http://stackoverflow.com/

3 LaTeX Tutorial, *youtube page*, https://www.youtube.com/watch?v=SoDv0qhyysQ