**Lab: 3**

**Name: Ryan Shaw**

**Registration number: 1605008**

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| **Problem statement(s)**  **EX1:** Create a square that responds to two buttons ‘Set’ and ‘Calc Area’ where the first changes the length of the square and the second returns the area of the square.  **EX2:** Is like **EX1**, but instead of ‘Set’ changing the length it alters the radius. ‘Calc Area’ performs the same, albeit with a different area formula.  **EX3:** Add draw methods incapsulated into the classes that inherit from the abstract ‘Shape’ class. |

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| **Program description(s)**  **EX1:** To start with, I created the lab3 package and the necessary classes and JComponents which are laid out as instructed.I’ve implemented an action listener that reacts based on the action number it’s passed. It is given ‘1’ then it will change the length to the given input. If the action number is ‘2’ it will set the text of the JTextField to the area of the square.  **EX2:** Again, this was like **EX1**, however, some details were changed to suit a circle. Such as: length to radius and changing the area calculation.  **EX3:** I coded ‘draw’ methods into each shape class which sets the color and draws it with the specified co-ordinates and size. |

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| **Test description**  Changed the square and circle numerous times to ensure it is correct. Then calculated the area for each size and checked with a calculator to make sure it is right. |
| **Known bugs**  - |
| **Possible improvements**  Format the area output number. |
| **Comments**  I found this more challenging than the previous labs and spent more time on it. |
| **Extra credit**  Following my “Possible improvements” comment I formatted the area output using DecimalFormat. The output is now a maximum of two decimal places. |
| **References**  https://docs.oracle.com/javase/7/docs/api/java/text/DecimalFormat.html |