# UNIQUE PATTERN PASSWORD GENERATOR:

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## ABSTRACT:

- The project Unique Pattern Password Generator aims to fulfil the problem of creating different pattern passwords for your phone.
- In this project we have tried the combination of lots of concepts while it generates the pattern, and connects the dots and stores the pattern in a file for your future references.

## WORKING AND BRIEF ABOUT THE PROJECT:

### BACK-END DESCRIPTION:

1. Now, on the backend of the application the code constructs the GUI.
2. First is the getpattern() method uses three variables a,b,c to generate a maximum of 9 digit number and stores it in the array. Thus, this method also prints the method on the console, so that one can refer to the pattern later.

```
64  public void getpattern()
65      {
```

```
        {
            Random r = new Random();
            int k = r.nextInt(7)+3;
            int i=0;
            if(k>=3)
                {
                while(i!=k)
                {
                    int a = r.nextInt(3);
                    boolean contains = IntStream.of(array).anyMatch(x->x==a);
                    if(contains==false)
                    {
                        array[i]=a;
                        i=i+1;
                    }
                    int b = r.nextInt(3)+3;
                    boolean contain = IntStream.of(array).anyMatch(x->x==b);
                    if(contain==false && i<k )
                    {
                        array[i]=b;
                        i=i+1;
                    }
                    int c = r.nextInt(4)+6;
                    boolean contained = IntStream.of(array).anyMatch(x->x==c);
                    if(contained==false && i<k)
                    {
                        array[i]=c;
                        i+=1;
                    }
                     if(i==k)
                       break;
                }
                for(int d1:array)
                  {
                     if(d1==0)
                       {break;}
                     else
```

```
                       {System.out.println(d1);
                         j++;

                    }

                    }System.out.println("Number:"+j);}
        }
```

3. This method uses an inbuilt Instream method of java to continuously check that no digit repeats in the array.
4. Since there are 9 dots thus there are 9! combinations possible that are 362880 without any repetition of digits.
5. Secondly, is the menu bar working in Jframe.

```
39          public AndroidPatternLock()
40          {
41              JFrame p1 = new JFrame();
42              setTitle("Android Patter Lock Generator");
43              setLayout(new FlowLayout());
44
45              JMenuBar menu_bar = new JMenuBar();
46              setJMenuBar(menu_bar);
47              JMenu file = new JMenu("File");
48              JMenuItem l1 = new JMenuItem("GET PATTERN");
49
50              menu_bar.add(file);
51              file.add(l1);
52              l1.addActionListener(this);
53
54              setSize(1000,1000);
55              menu_bar.setVisible(true);
56
57              setVisible(true);
58              setDefaultCloseOperation(EXIT_ON_CLOSE);
59
60
61              //l2.addActionListener(null);
62          }
```

6. We have used the method of menu bar so that the buttons do not use the space of the frame.
7. There is only one button Get Pattern.
8. When the Get Pattern button is clicked it invokes the ActionListener interface and ActionListener invokes the abstract actionPerformed method.
9. This actionPerformed method generate according to the numbers given in the array[].
10. And these coordinates are then stored into four different arrays that are x1,y1,x2,y2.
11. These coordinates are then used by the drawLine method in paint to draw line between the points and Thread.Sleep method maintain the animation of connecting lines
12. Thus, the exceptions handled are written in Table below

| Sr.NO | Exception Name | Usage |
|---|---|---|
| 1. | ArrayOutOfBounds | This exception helps to maintain the maximum size of array that is 9 |

| | | |
|---|---|---|
| 2. | InterruptedException | This exception is applied due to presence of thread.sleep. |
| 3. | NullPointerException | This method is used to make sure that no null value is passed in the coordinates |

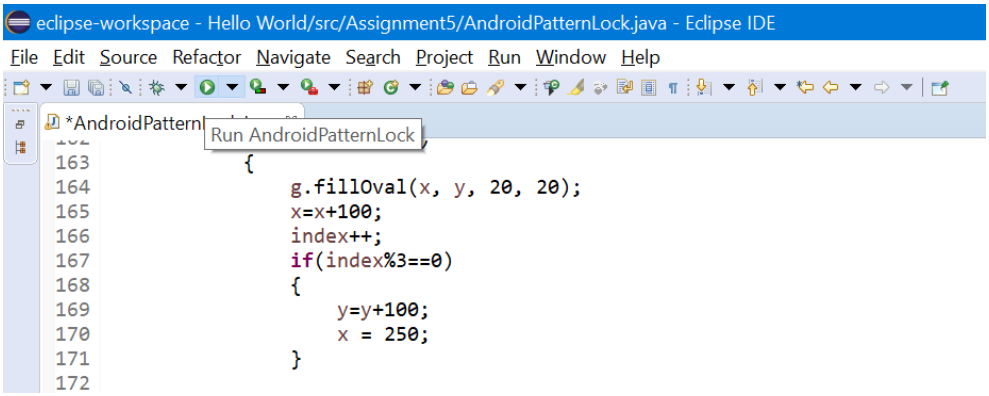
13. The different util libraries used are as follows:

| Sr.NO | Util Library Name | Usage |
|---|---|---|
| 1. | Random | It is used to generate a random number between given range/ |
| 2. | InStream | It is used with array to check whether an element exist in the array or not. |
| 3. | NullPointerException | This method is used to make sure that no null value is passed in the coordinates |

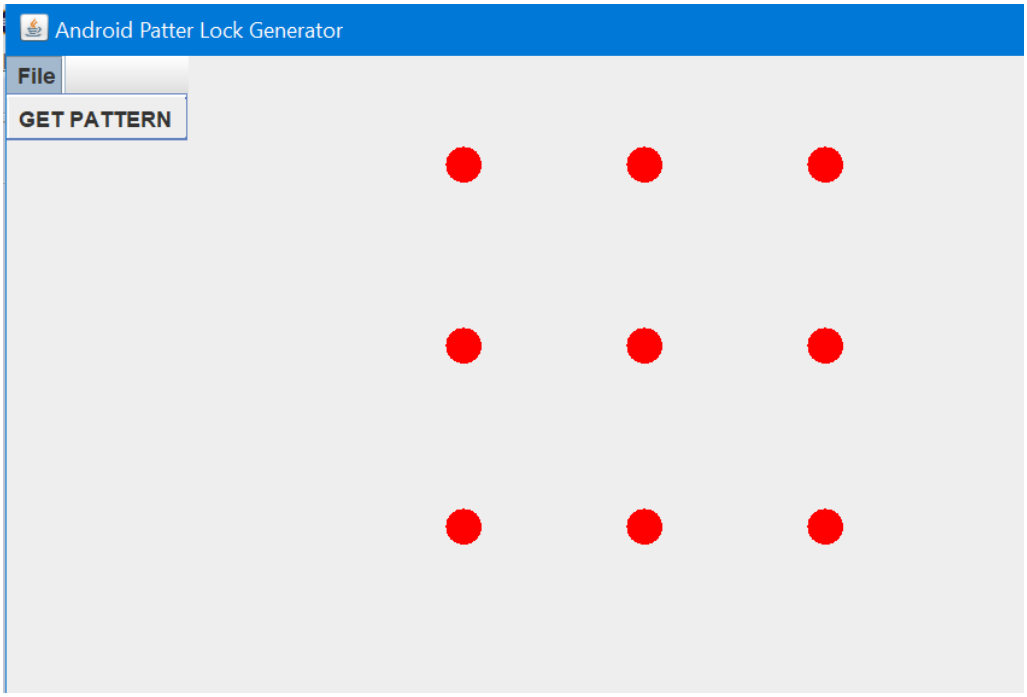
## FRONT-END DESCRIPTION:

1. The frontend of the GUI is managed by the AWT and Swing library of java.

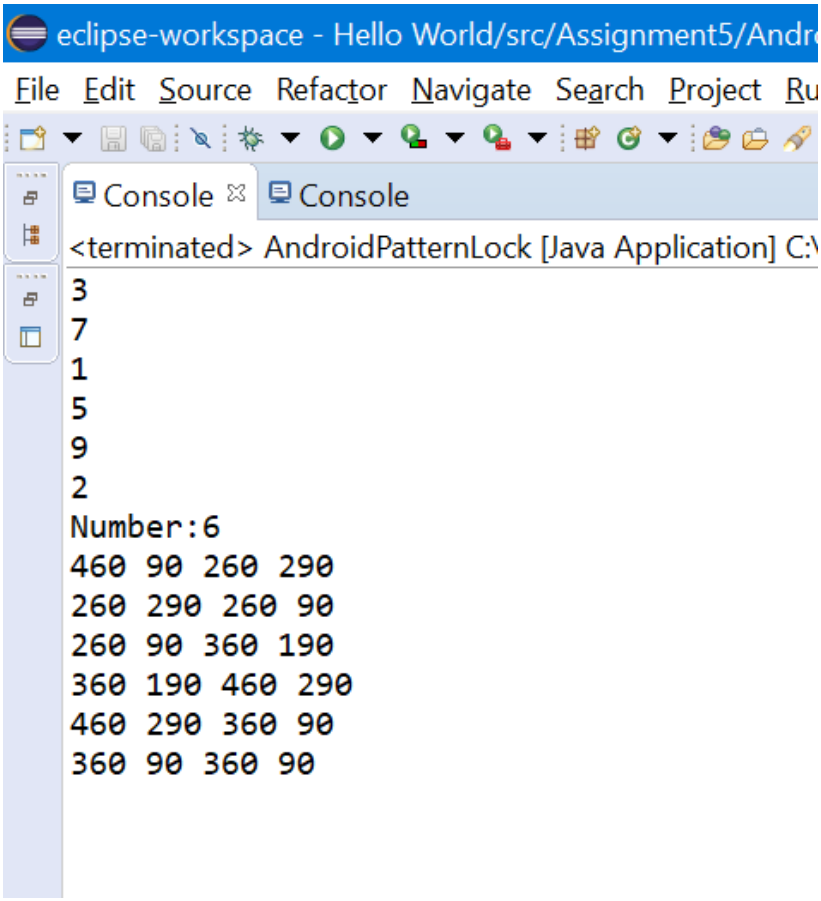
2. Firstly, we will open the project in IDE (Eclipse/Netbeans), build it and then run the project



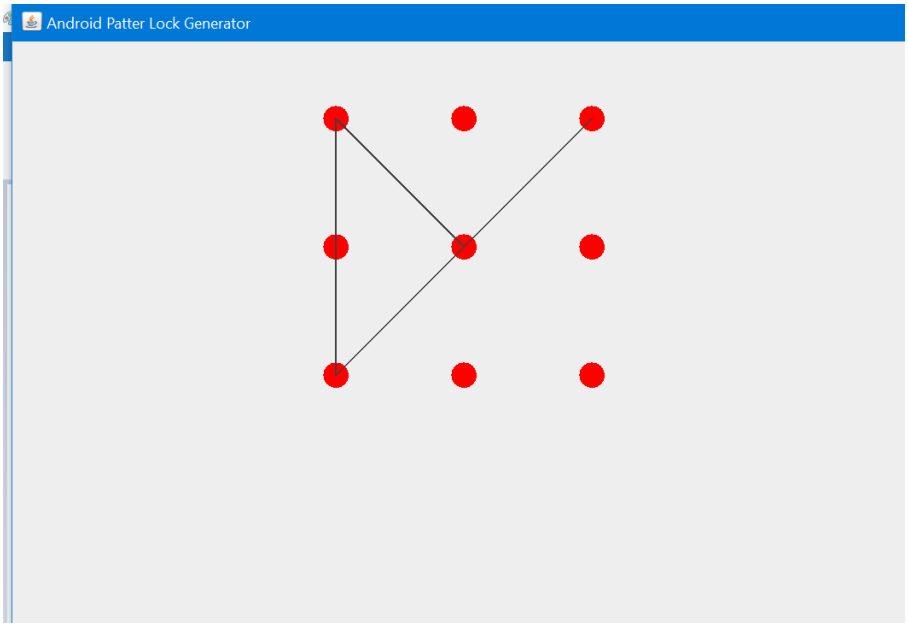

3. When GUI is opened the first page looks like the image shown below:




4. Then click on GET PATTERN and then you will minimize it and you can see a random pattern is generated and below it is the coordinates of the numbers generated.




5. Then, you can see the pattern generated like this:




NOTE: Here you can see the transition of lines between each dot in sequence.(The video is also attached in the .zip file)

6. If you are not satisfied with the pattern generated you can again run the program and get a new pattern.
7. The contents used from Swing and AWT are as follows:

| Sr.NO | Swing/AWT sub class Name | Usage |
|---|---|---|
| 1. | JFrame | It helps in creating a frame which is visible to users |
| 2. | JMenubar, JMenu,JMenuItems | It helps to maintain a menubar of different choices |
| 3. | Graphics | It is used to draw different shapes of different colors and components on the screen |
| 4. | Event.ActionListener | It is used to perform a specific action when a specific button or MenuItem is clicked |

## APPLICATIONS:

- This GUI can help you to get random passwords that helps you create an Android Pattern Lock for your own phone.
- This GUI can also be attached to some of your website as captcha where you give them pattern and they connect the dots by making few changes in the code.
- It also helps in generating different lock for different Apps on your phone.