







Summary of what you learned previously Project plan

- 1. Placing the components
- 2. Block coding

Summary Class Assignment

3. Great challenge!

Summary of what you learned previously:

By this time, you are already much experienced in designing Android apps user interfaces using different components from Designer Palette, setting their properties; you know how to use event handlers with arguments, how to use Control components, what are the ImageSprites, concepts of creating your own procedures, implementing repeated behavior, generating random numbers. You learned how to create two pages (screens) and navigate between them, how to use Clock sensor, Time Picker, Text Boxes, and compared the difference between Player and Sound components. In recent class you practiced with Lists and Databases.

Today you will combine your knowledge and skills from different lectures to make a greater code while creating a Password Generator App. You will practice in longer logic structures, use lists, and random numbers generator.

Project plan:

Here is the main screen of the Password Generator App project:

This app can do both – check your password strength and generate strong passwords for you after you enter the first 3 symbols.

In the current app version, the slider is visualizing passwords strengths, but you can modify the app to make users move the slide to set what strength password they want to generate.

There are even more improvements possible to make after you get introduced with the current project and understand the logic flow of this application designing and coding.



1. PLACING THE COMPONENTS

1. Placing the components

See what components are initially inserted and how they are resized, arranged, and renamed:

| | • | 😑 🔲 Screen1 | Screen1 |
|--|--|------------------------------|------------------------------|
| ▼ 12.30 | ▶ ▲ 12:30 | VerticalArrangement1 | VerticalArrangement1 |
| Screen 1 : | PW E | A Label1 | A app_title |
| Text for Label1 | | 😑 🔤 Horizontal Arrangement 1 | 😑 🔤 Horizontal Arrangement 1 |
| | PASSWORD GENERATOR | A Label2 | A enter_PW |
| Text for Label2 | | TextBox1 | I enter_PW_box |
| | enter PW | A Label3 | A Label2 |
| Text for Label3 | | 😑 🔤 Horizontal Arrangement 2 | 🗧 🖻 HorizontalArrangement5 |
| | Password Strength Score | A Label4 | A Label1 |
| Text for Label5 | | A Label5 | A score_label |
| | | 😑 🔤 Horizontal Arrangement 3 | 😑 🔤 Horizontal Arrangement 2 |
| Text for Button1 Text for Button2 | | Slider1 | Slider1 |
| | | 😑 🔤 Horizontal Arrangement 4 | 😑 🔤 Horizontal Arrangement 3 |
| Text for Button3 | | Button 1 | Check_btn |
| | | Button2 | Reset_btn |
| You can see that some single compone | nts are inserted into Vertical or Horizontal | 😑 🛄 Horizontal Arrangement 5 | 😑 🔤 Horizontal Arrangement 4 |
| arrangements - this is to avoid using er | npty labels for space. I use both - | Button3 | GeneratePW_btn |
| arrangements and space labels for you | to choose which ones you will select to use. | | · |

6

2. BLOCK CODING





see continue of this WHEN "Check_btn Click" DO block on the next page

this is the continue of the WHEN "Check_btn Click" DO block from previous page







This app is checking your password strength in terms of using all possible characters and symbols, and adds one extra point if a password length is 8 and longer.

It generates passwords by adding additionally 4 characters/symbols to initially entered minimum 3 characters/symbols by a user.

Class Assignment:

After practicing this project development, think and create the better version of such application changing its interface design and expanding its functionality, <u>as described in Great Challenge</u>.

After completing Challenge:

- export the project to your PC under the name "your_student_number_PW_challenge.aia";
- create a PPT report with screenshots of <u>interface</u> and <u>coding</u>. Make sure that your AppInventor email is visible in screenshots and <u>all components list</u> is provided from Designer view;
- submit BOTH files (AIA and PPT) in this week class assignment in E-class.

You have entire 1 week (till the next class) to finish the challenge project and submit it. Do not submit the project explained in class.

3. GREAT CHALLENGE!

1

4

very weak (2 cases)

2 poor (5 cases)

3 fair (5 cases)

good (4 cases)

5 excellent (4 cases)

https://www.reddit.com/media?url=https%3A%2F%2Fpreview.redd.i t%2Fi-updated-our-popular-password-chart-for-2024-with-moredata-v0-

gw5v0007b8wc1.png%3Fwidth%3D1080%26crop%3Dsmart%26auto %3Dwebp%26s%3Dd2592ec67594aaedda3c991ee30a65087ecf6c54 &rdt=41692

TIME IT TAKES A HACKER TO BRUTE FORCE YOUR PASSWORD IN 2024

How did we make this? Learn at hivesystems.com/password

| Number of Characters | Numbers Only | Lowercase Letters | Upper and Lowercase Letters | Numbers, Upper and Lowercase Letters | Numbers, Upper and Lowercase Letters, Symbols |
|-------------------------|--------------|----------------------|-----------------------------------|--|---|
| 4 | Instantly | Instantly | 3 secs | 6 secs | 9 secs |
| 5 | Instantly | 4 secs | 2 mins | 6 mins | 10 mins |
| 6 | Instantly | 2 mins | 2 hours | 6 hours | 12 hours |
| 7 | 4 secs | 50 mins | 4 days | 2 weeks | 1 month |
| 8 | 37 secs | 22 hours | 8 months | 3 years | 7 years |
| 9 | 6 mins | 3 weeks | 33 years | 161 years | 479 years |
| 10 | 1 hour | 2 years | 1k years | 9k years | 33k years |
| 11 | 10 hours | 44 years | 89k years | 618k years | 2m years |
| 12 | 4 days | 1k years | 4m years | 38m years | 164m years |
| 13 | 1 month | 29k years | 241m years | 2bn years | 11bn years |
| 14 | 1 year | 766k years | 12bn years | 147bn years | 805bn years |
| 15 | 12 years | 19m years | 652bn years | 9tn years | 56tn years |
| 16 | 119 years | 517m years | 33tn years | 566tn years | 3qd years |
| 17 | 1k years | 13bn years | 1qd years | 35qd years | 276qd years |
| 18 | 11k years | 350bn years | 91qd years | 2qn years | 19qn years |





numbers & length(4:6) **OR** lowcase & length(4)

& is "AND"

2

3

4

5

numbers & length(7:14) **OR** lowcase & length(5:9) **OR** upper & lowcase & length(4:8) **OR** numbers & upper & lowcase & length(4:7) **OR** numbers & upper & lowcase & symbols & length (4:7)

numbers & length(15:18) **OR** lowcase & length(10:13) **OR** upper & lowcase & length(9:11) **OR** numbers & upper & lowcase & length(8:10) **OR** numbers & upper & lowcase & symbols & length (8:10)

lowcase & length(14:16) **OR** upper & lowcase & length(12:13) **OR** numbers & upper & lowcase & length(11:13) **OR** numbers & upper & lowcase & symbols & length (11:12)

lowcase & length(17:18) **OR** upper & lowcase & length(14:18) **OR** numbers & upper & lowcase & length(14:18) **OR** numbers & upper & lowcase & symbols & length (13:18)















Here is a sketch of the new PW Generator application!

Make the second slider adaptive according to the selected PW strength, i.e., change its minimum and maximum available values.

The buttons with PW symbols to use should also be adaptive, and text above it as well. E.g., with PW strength 4 and PW length 11 (which is minimum available), it is possible to use all 4 buttons, but a user selected to use only lowcase, uppercase characters and numbers to generate PW.

You can code to make buttons invisible in case if they cannot be used to generate a PW.

Password Generator

What PW strength do you want?

11

What PW length do you want?





Generate PW!

Here is your new PW:

6b8Wa37k5FG



