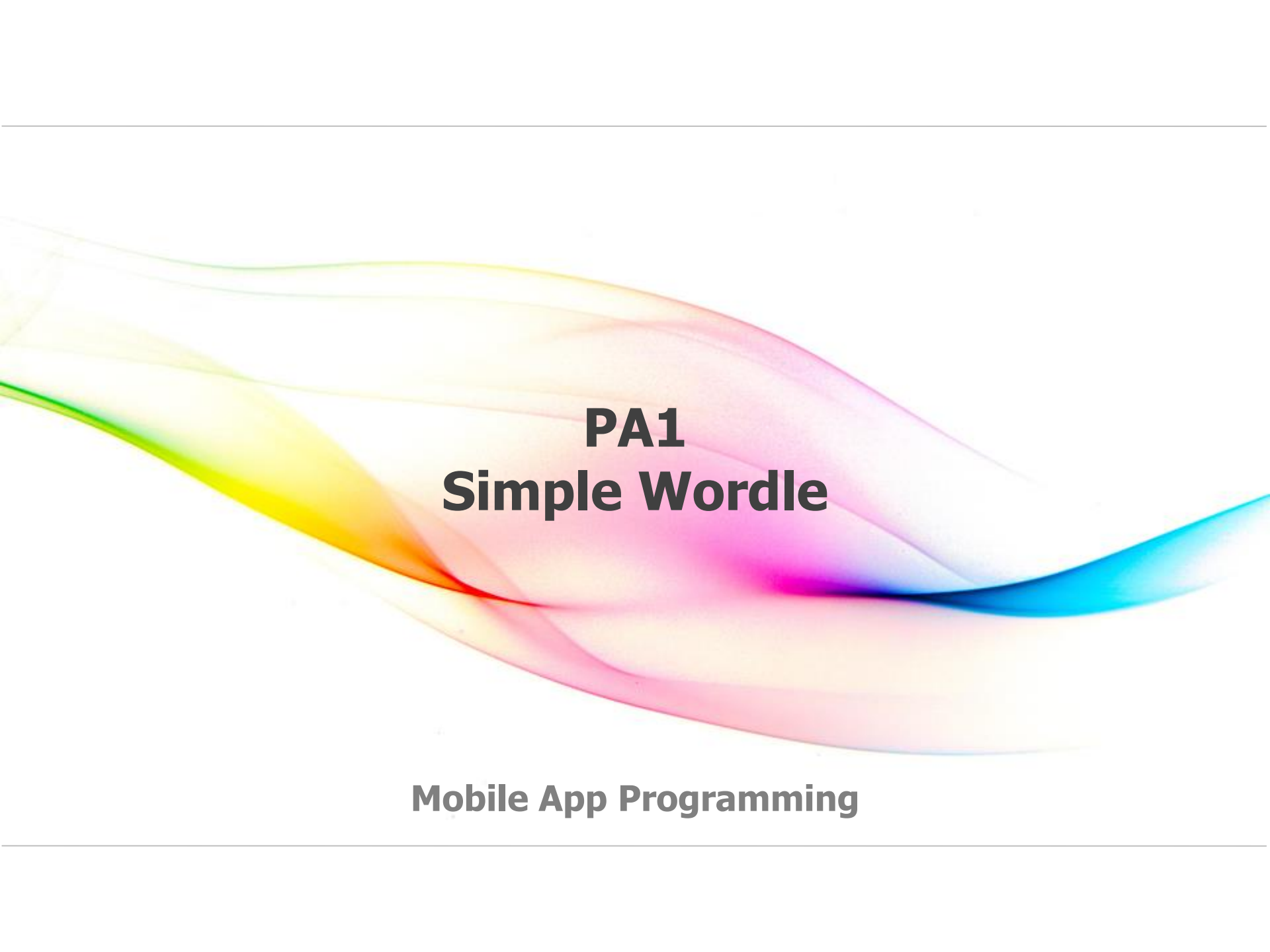


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# **PA1** **Simple Wordle**

**Mobile App Programming**

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# Wordle

- Guess a five-letters English word.
  - Letter not included / Included but wrong pos / Right
  - Similar with Bulls and Cows(숫자야구)
- <https://www.nytimes.com/games/wordle/index.html>

A	D	I	E	U
M	O	U	N	T
C	H	A	I	R
R	E	T	R	Y
R	E	N	E	W

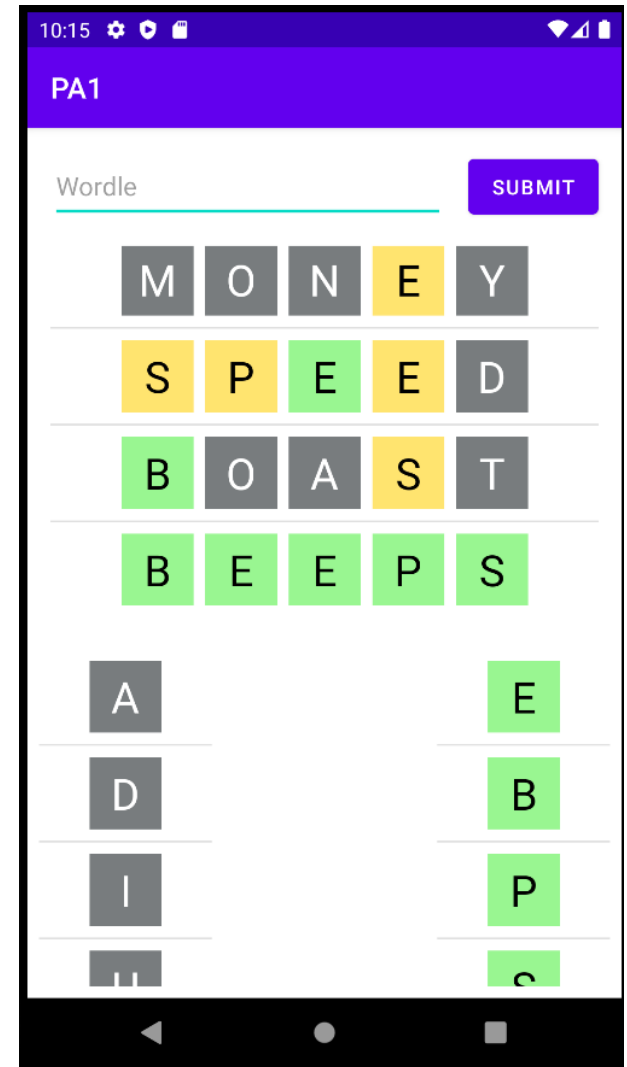
# Wordle

- Green: Right letter & Right position
  - Same letter could be elsewhere too
- Yellow: Right letter & Wrong position
- Gray: Wrong letter

A	D	I	E	U
M	O	U	N	T
C	H	A	I	R
R	E	T	R	Y
R	E	N	E	W

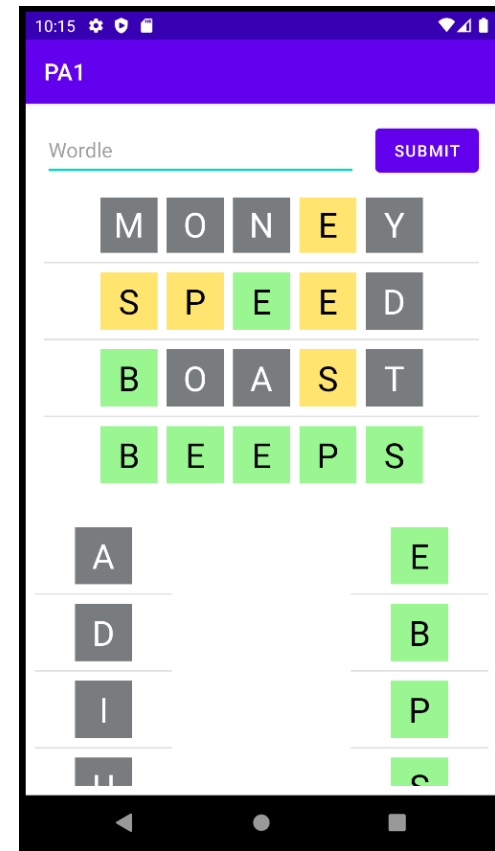
# PA1 Goal

- Make Wordle Application
  - We will give you a dictionary file.
  - Text input must be done with EditText.
  - User can only guess with a valid word
  - Guess list must be shown
  - Gray/Yellow/Green letter list must be shown
  - List must be ListView(RecyclerView allowed)



# PA1 Goal

- UI
  - Score will be deducted when
    - You did not follow guideline
    - AND seemingly bad
      - No objection allowed
  - TAs will score your apps
    - Pixel 5 API 29
      - 1080 x 2340: 440dpi
      - Android 10.0 (API 29)

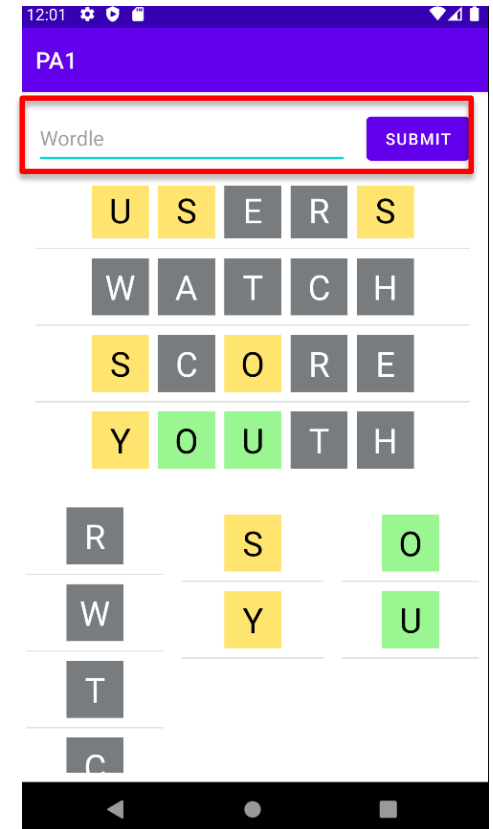


# PA1 Specification

- Project Settings
  - Minimum SDK: Must be [29](#)(Android 10.0)
  - Target & Compile SDK: Must be [34](#)(Android 14.0)
  - Application ID(Package): Must be [edu.skku.cs.pa1](#)
- Application Execution
  - The wordle screen must be shown without any action.
  - The application must be started in 10 seconds.
  - UI must not stop more than 5 seconds.
  - No error while build/execution

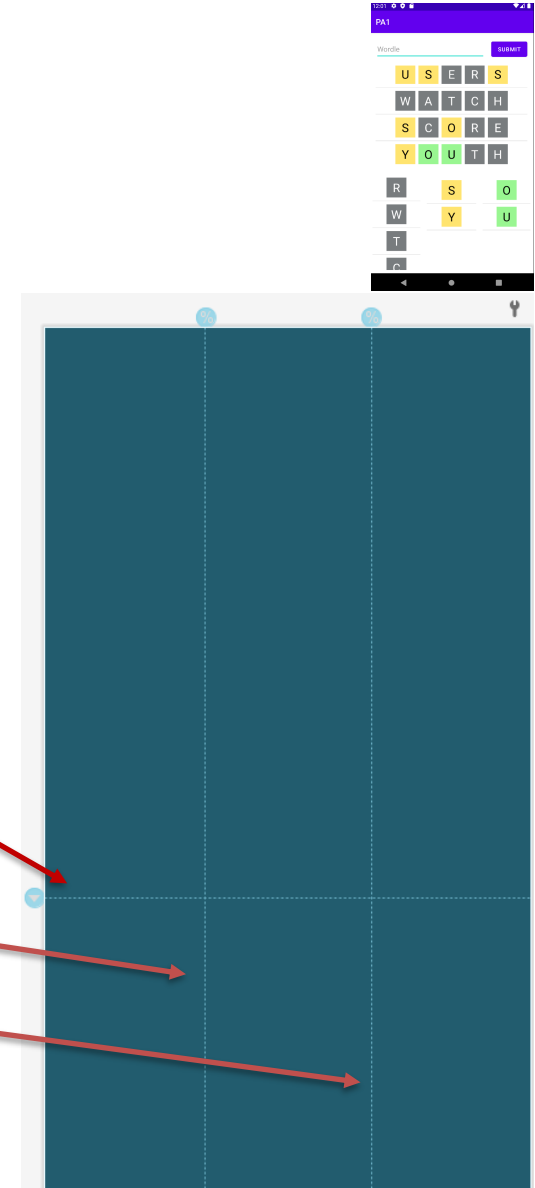
# PA1 Specification

- User Interface: Screen
  - EditText
    - height: 50dp
    - Margin (top, bottom, start, end) : 16dp
    - width: match\_constraint
    - Text: None(empty)
    - Hint: Wordle
  - Button
    - height: 50dp
    - margin (top, bottom, start, end) : 16dp
    - width: wrap\_contents
    - Text: SUBMIT



# PA1 Specification

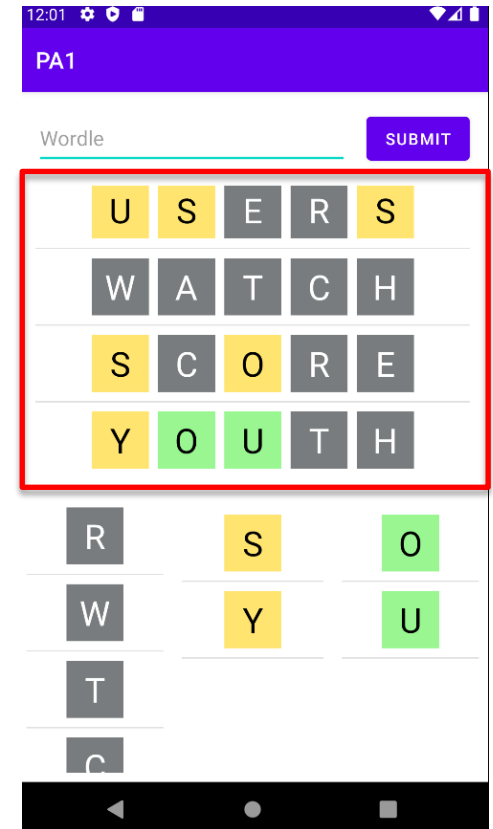
- User Interface: Screen
  - Guideline
    - `androidx.constraintlayout.widget.Guideline`
    - Horizontal
      - **250dp from bottom**
    - Vertical
      - 33%
      - 67%
  - Tips on page 29





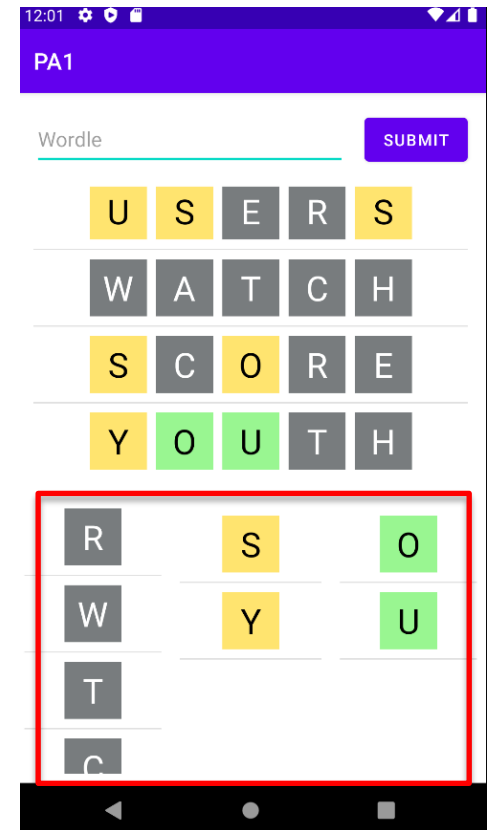
# PA1 Specification

- User Interface: Screen
  - Wordle Word List
    - Listview (or RecyclerView)
    - Item Layout: Later
    - Margin (top, bottom, start, end) : 16dp
    - height/width: match\_constraint



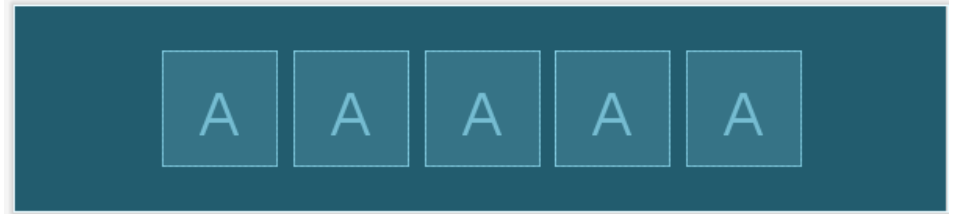
# PA1 Specification

- User Interface: Screen
  - Wordle Letter List
    - Listview (or RecyclerView)
    - Item Layout: Next page
    - Margin (top, bottom, start, end) : 8dp
    - height/width: match\_constraint
    - Leftmost = (gray)
    - Middle = (yellow)
    - Rightmost = (green)



# PA1 Specification

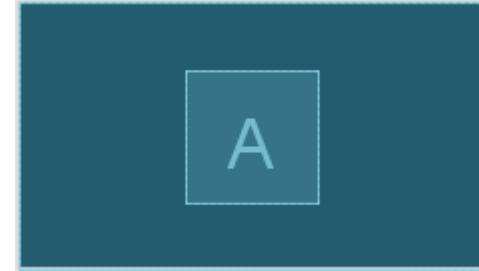
- User Interface: Listview
  - Wordle Word List



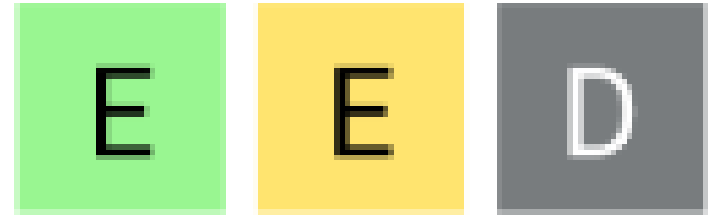
- Listview (or RecyclerView)
- Must be centered horizontally
- vertical margin (top, bottom) : 8dp
- horizontal margin between letter Textviews: 8dp
- Text must be centered vertically&horizontally in TextView
- Letter Textview
  - width/height: 50dp
  - Text Size: 30sp

# PA1 Specification

- User Interface: Listview
  - Wordle Letter List
    - Listview (or RecyclerView)
    - Must be centered horizontally
    - Letter Textview
      - width/height: 50dp
      - Text Size: 30sp
    - Margin (top, bottom) : 8dp
    - Text must be centered vertically&horizontally in TextView



# PA1 Specification



- User Interface: Others
  - Wordle Letter
    - Right Letter & Right position ( **Green** )
      - Background = #FF99F691 (#99F691)
      - Text = #FF000000 (#000000)
    - Right Letter & Wrong position ( **Yellow** )
      - Background = #FFFFE46F (#FFE46F)
      - Text = #FF000000 (#000000)
    - Wrong Letter ( **Gray** )
      - Background = #FF787C7E (#787C7E)
      - Text = #FFFFFFFF (#FFFFFF)

# PA1 Specification

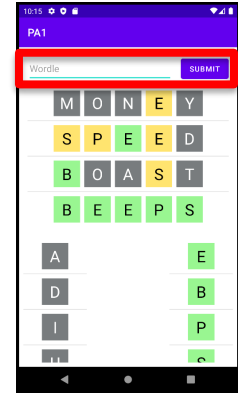
- Functionalities

- Wordle

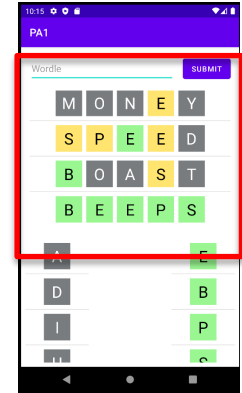
- On app execution, generate a random answer
    - Among given five-letters words dictionary

- Guess

- If user type word in EditText and press SUBMIT Button,
      - Check it is in the dictionary
        - » If not, show toast:  
"Word '<User\_input>' not in dictionary!"
        - » If in, add that guess to below lists and clear EditText

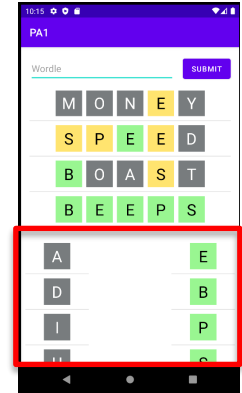


# PA1 Specification



- Functionalities
  - Wordle Word list
    - Once user guessed the word in dictionary, it must be added.
    - The guessed five letters word is shown in one line.
    - Newly added word must go to the bottommost.
    - Set the text to guessed word's letter.
    - Set background color and text color according to 'UI: Others'.
      - ( Green ) ( Yellow ) ( Gray )
    - Since it is ListView(or RecyclerView), it must be scrollable.

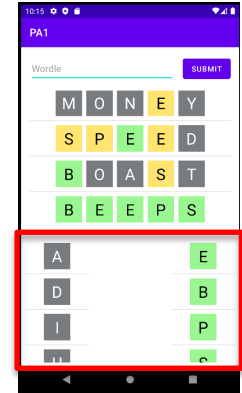
# PA1 Specification



- Functionalities
  - Wordle Letter list
    - Once user guessed the word in dictionary, All the guessed five letters must be checked.
    - Set background color and text color according to 'UI: Others'.
      - ( Green ) ( Yellow ) ( Gray )
    - Since it is ListView(or RecyclerView), each must be scrollable independently.
    - Newly added letter must go bottommost (or it could be sorted alphabetically).



# PA1 Specification



- Functionalities
  - Wordle Letter list
    - If a letter is Gray,
      - Add to left list **if not already in** left list.
    - If a letter is Yellow,
      - Add to middle list if not already in middle/right list.
    - If a letter is Green,
      - Add to right list if not already in right list.
      - Remove that letter in middle list.

**[Important] If the duplicated letter both exist in yellow and green list, that letter only exists on green list.**

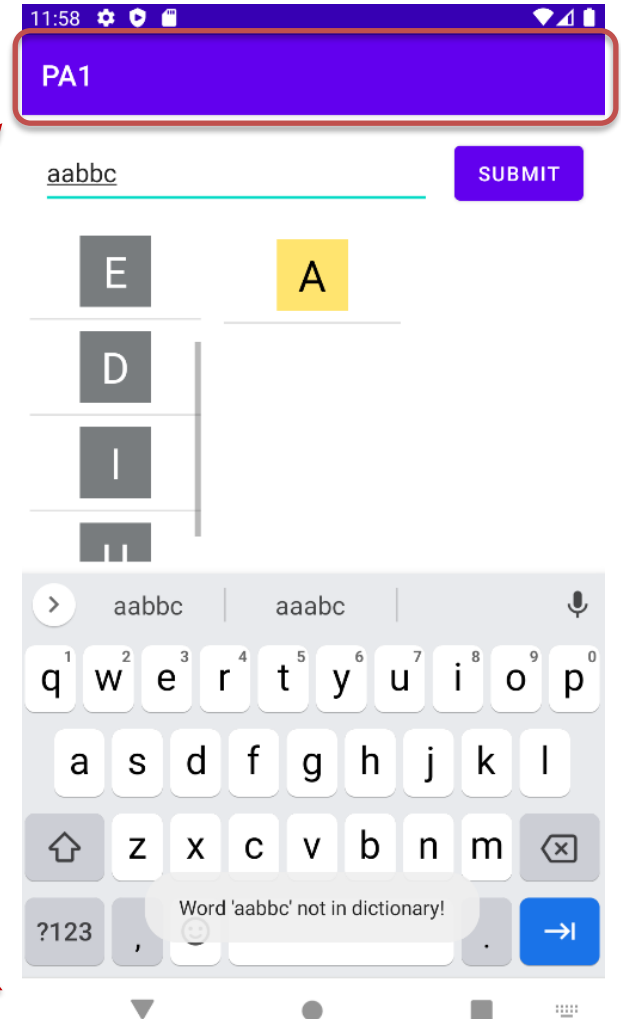
# PA1 Others

- Do not care about
  - # of Adapter class
  - # of Adapter object
  - Make reset button: just restart app
  - Successful guess: no need to do something else
- Questions?
  - <https://docs.google.com/spreadsheets/d/1afFMUBD7RnW6MVquZNiF40uEruv8RcymBpFiRL36PgE/edit#gid=1676870837>
  - See this slide until the end.
  - Tips

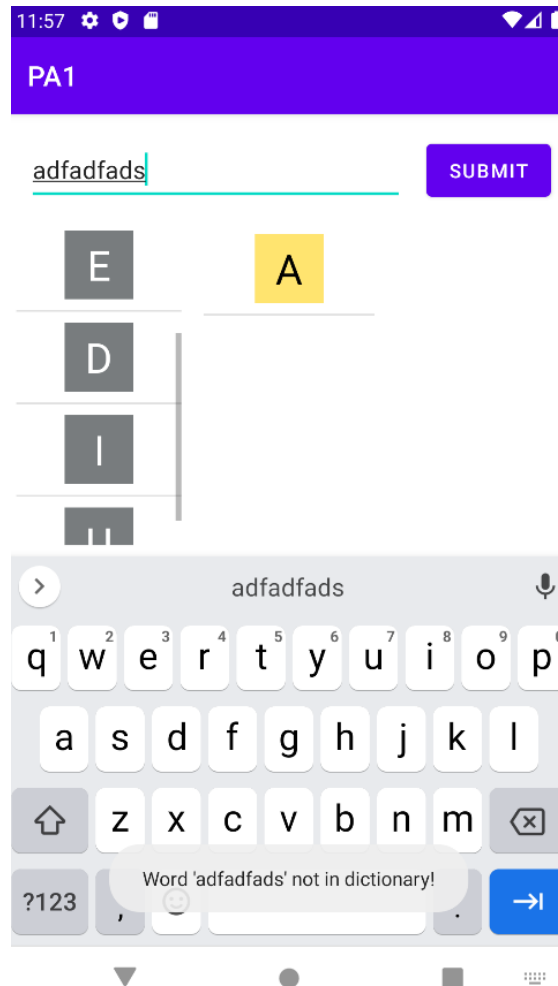
# PA1 Others

We don't care the existence of Application Title Bar.

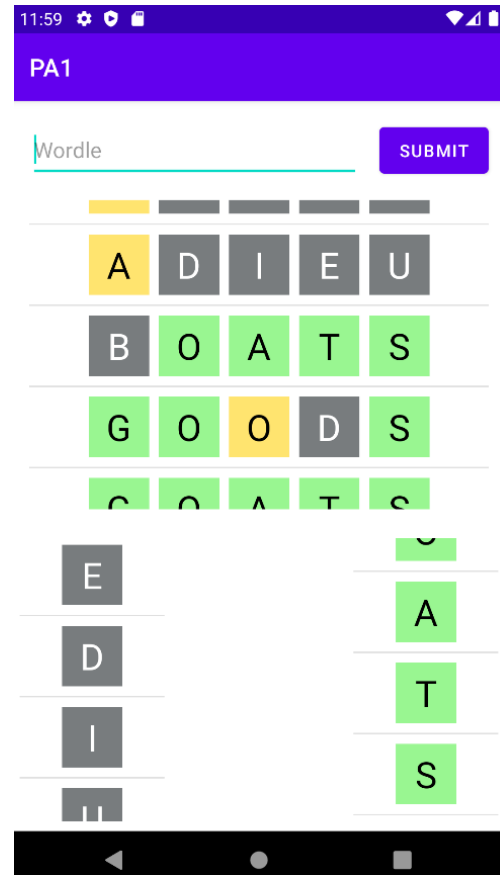
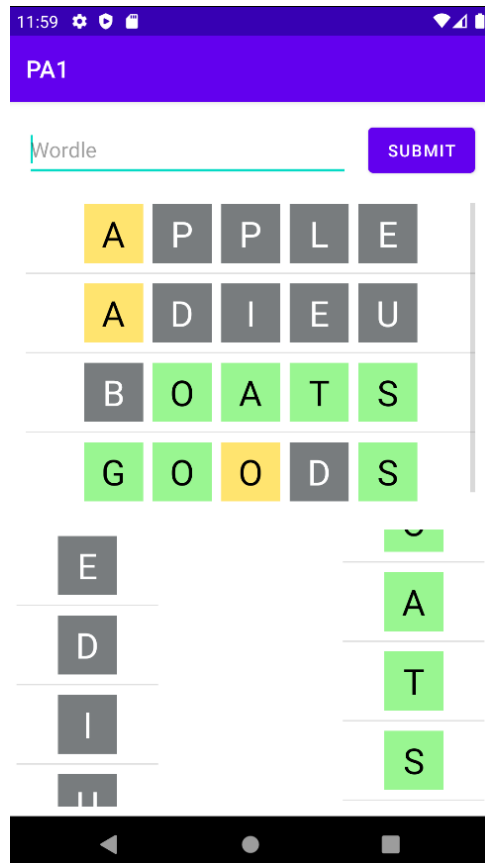
Do not use “enableEdgeToEdge()” or you will be penalized. Be careful.



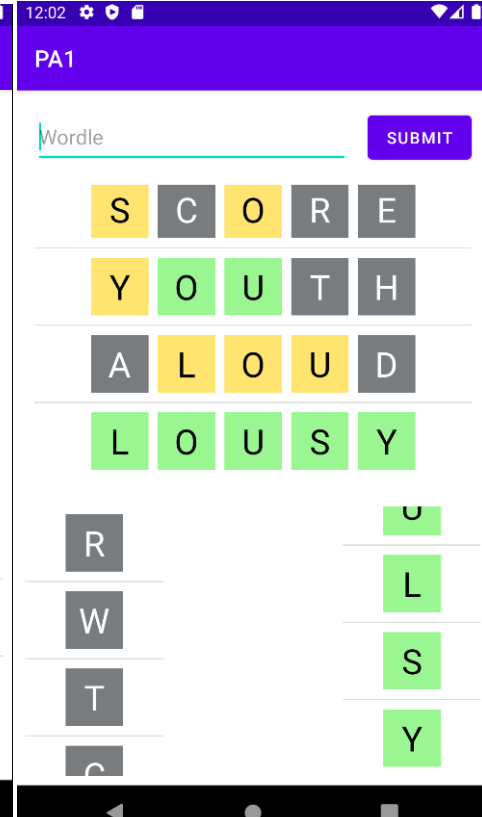
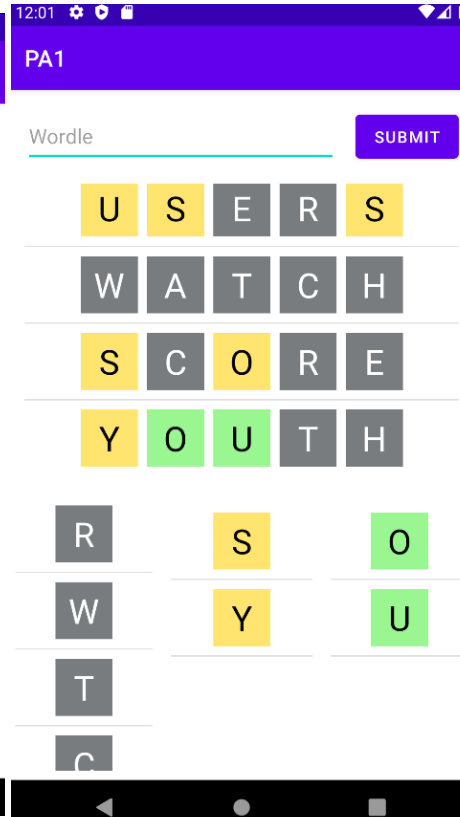
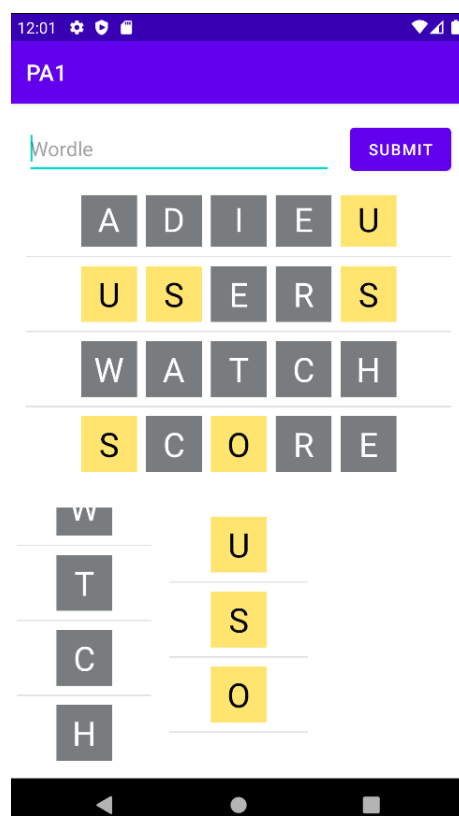
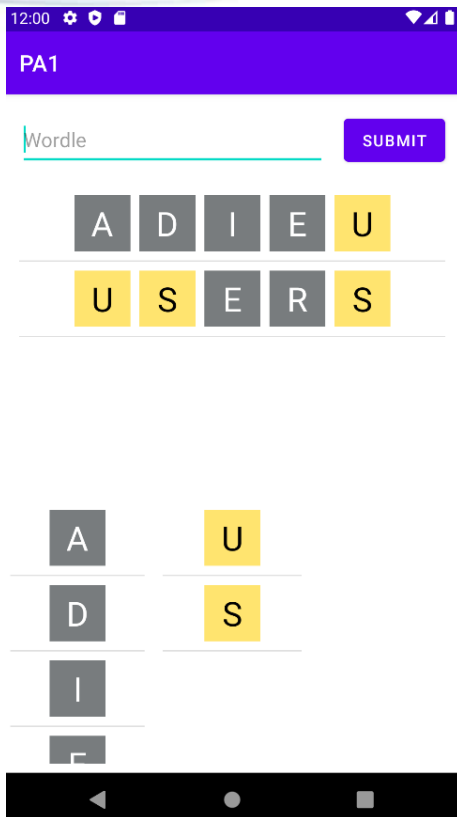
# PA1 Screenshots



# PA1 Screenshots



# PA1 Screenshots

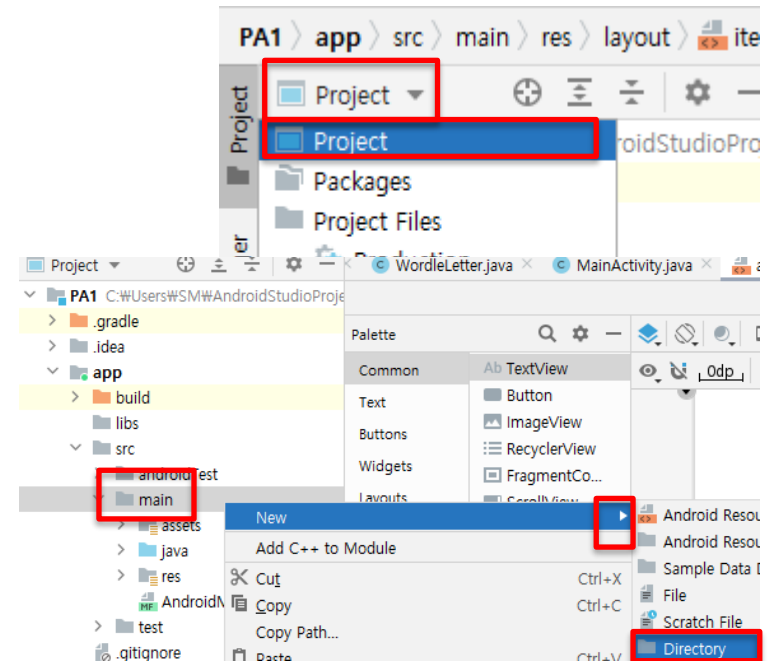
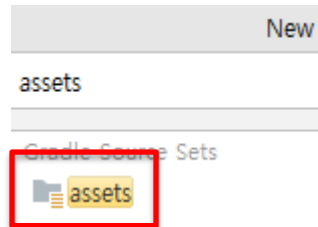


# PA1 Submission

- Submit single zip file with name "<Student ID>\_pa1.zip"
  - Shift Twice -> search "export" -> Export to zip -> Change file name and select location to save
  - Do not care about ending '-<Number>' (ex: 2024314288-1.zip)
- Submission Due
  - **4/28 23:59**
  - Delayed Submission
    - ~5/1 23:59
    - Your score will be penalized by 25%p per day.
      - $70/100, 2 \text{ day late} = 70 \cdot (1 - 0.25 \cdot 2) = 35/100$

# PA1 Tips: File Read

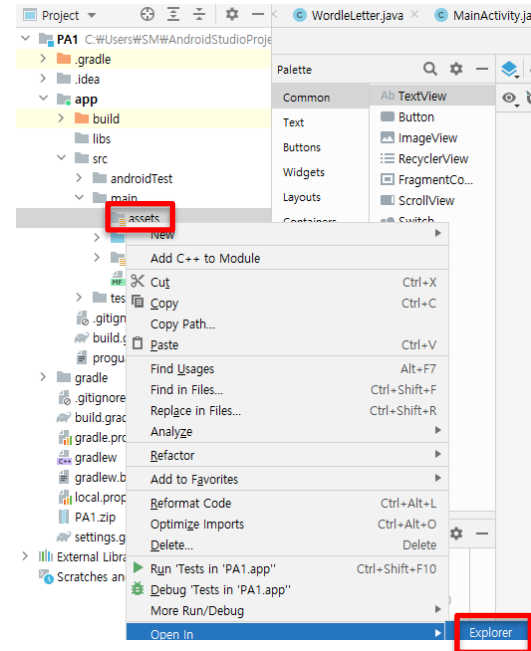
- Download wordle dictionary txt file.
  - on iCampus: one word in single line, line by line
  - source: <https://github.com/cwackerfuss/react-wordle/blob/main/src/constants/wordlist.ts>
- Change project view to “Project”, not “Android”
- Right click on PA1/app/src/main
- New > Directory
- Type ‘asset’ and choose one





# PA1 Tips: File Read

- Right click on assets
- Open in explorer
- Go into assets folder
- Paste that txt file in assets

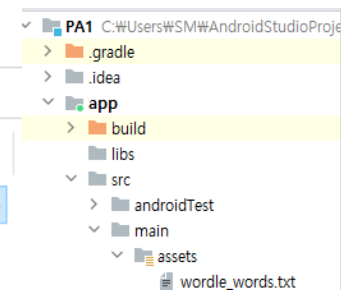


이름	PA1 > app > src > main > assets
assets	유형 크기

이 폴더는 비어 있습니다.

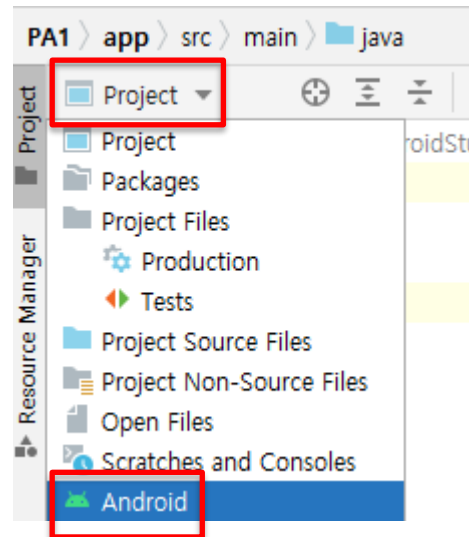
> 로컬 디스크 (C:) > Users > SM > AndroidStudioProjects > PA1 > app > src > main > assets

이름	수정한 날짜	유형	크기
wordle_words.txt	2022-03-20 오후 8:18	텍스트 문서	40KB



# PA1 Tips: File Read

- Recommend to revert project view to “Android”



## PA1 Tips: File Read

- Will open the `InputStream`
- Use Like
  - `applicationContext.assets.open(fileName)` will open file as `InputStream`
  - `inputStream.readBytes().toString(Charsets.UTF_8)` will read `InputStream` and convert it to `String`
- Further Tips:
  - <https://www.baeldung.com/kotlin/inputstream-to-string>
  - <https://www.baeldung.com/kotlin/read-file>

# PA1 Tips: Others

- Color: app/res/values/colors.xml

- R.color.name

- ContextCompat.getColor(applicationContext, R.color.???)

- Adapter


- this.notifyDataSetChanged()

- Others

- textView.setBackgroundColor(~) / textView.setTextColor(~) /  
textView.text = ~

- editText.text.toString() /  
editText.text = Editable.Factory.getInstance.newEditable(~)

- android:hint



```
<color name="background_out">#FF787C7E</color>
<color name="background_ball">#FFFFE46F</color>
<color name="background_strike">#FF99F691</color>
<color name="text_out">#FFFFFF</color>
<color name="text_ball">#FF000000</color>
<color name="text_strike">#FF000000</color>
```

# PA1 Tips: Others

- Guideline options with DP

```
<androidx.constraintlayout.widget.Guideline
    android:id="@+id/guideline3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    app:layout_constraintGuide_percent="0.80" />
```

Percent

```
<androidx.constraintlayout.widget.Guideline
    android:id="@+id/guideline3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    app:layout_constraintGuide_end="585dp" />
```

DP