Flutter Gestures

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Gestures

- Gestures are an interesting feature in Flutter that allows us to interact with the mobile app (or any touch-based device).
- Generally, gestures define any physical action or movement of a user in the intention of specific control of the mobile device. Some of the examples of gestures are:
  - When the mobile screen is locked, you slide your finger across the screen to unlock it.
  - Tapping a button on your mobile screen, and
  - Tapping and holding an app icon on a touch-based device to drag it across screens.

Gestures

- We use all these gestures in everyday life to interact with your phone or touch-based device.
- Flutter divides the gesture system into two different layers, which are given below:
  - Pointers
  - Gestures

Pointers

- Pointers are the first layer that represents the raw data about user interaction.
- It has events, which describe the location and movement of pointers such as touches, mice, and style across the screens.
- Flutter does not provide any mechanism to cancel or stop the pointer-events from being dispatched further.
- Flutter provides a Listener widget to listen to the pointer-events directly from the widgets layer.

Pointers

- The pointer-events are categories into mainly four types:
  - PointerDownEvents
  - PointerMoveEvents
  - PointerUpEvents
  - PointerCancelEvents

Pointers

- PointerDownEvents: It allows the pointer to contact the screen at a particular location.
- PointerMoveEvents: It allows the pointer to move from one location to another location on the screen.
- PointerUpEvents: It allows the pointer to stop contacting the screen.
- PointerCancelEvents: This event is sent when the pointer interaction is canceled.

Gestures

- It is the second layer that represents semantic actions such as tap, drag, and scale, which are recognized from multiple individual pointer events.
- It is also able to dispatch multiple events corresponding to gesture lifecycle like drag start, drag update, and drag end.
- Some of the popularly used gesture are listed below:

Gestures

- Tap: It means touching the surface of the screen from the fingertip for a short time and then releasing them. This gesture contains the following events:
  - onTapDown
  - onTapUp
  - onTap
  - onTapCancel

Gestures

- Double Tap: It is similar to a Tap gesture, but you need to tapping twice in a short time. This gesture contains the following events:

  onDoubleTap

- Drag: It allows us to touch the surface of the screen with a fingertip and move it from one location to another location and then releasing them. Flutter categories the drag into two types:

Gestures

- Horizontal Drag: This gesture allows the pointer to move in a horizontal direction. It contains the following events:
  - onHorizontalDragStart
  - onHorizontalDragUpdate
  - onHorizontalDragEnd
- Vertical Drag: This gesture allows the pointer to move in a vertical direction. It contains the following events:
  - onVerticalDragStart
  - onVerticalDragStart
  - onVerticalDragStart

Gestures

- Long Press: It means touching the surface of the screen at a particular location for a long time. This gesture contains the following events:

  onLongPress

- Pan: It means touching the surface of the screen with a fingertip, which can move in any direction without releasing the fingertip. This gesture contains the following events:

  onPanStart

  onPanUpdate

  onPanEnd

Gestures Detectors

- Flutter provides a widget that gives excellent support for all types of gestures by using the GestureDetector widget. The GestureWidget is non-visual widgets, which is primarily used for detecting the user's gesture.
- The basic idea of the gesture detector is a stateless widget that contains parameters in its constructor for different touch events.
- In some situations, there might be multiple gesture detectors at a particular location on the screen, and then the framework disambiguates which gesture should be called.
- The GestureDetector widget decides which gesture is going to recognize based on which of its callbacks are non-null.

Gestures Detectors

- Example

Thank you

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