ConstraintLayout

Flows

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:app="http://schemas.android.com/apk/res-auto">

    <Button
        android:id="@+id/btA"
        android:layout_width="35dp"
        android:layout_height="60dp"
        android:backgroundTint="#FF5722"
        android:text="A" />

    <Button
        android:id="@+id/btB"
        android:layout_width="40dp"
        android:layout_height="80dp"
        android:backgroundTint="#FF9800"
        android:text="B" />

    : : : :

    <Button
        android:id="@+id/btJ"
        android:layout_width="40dp"
        android:layout_height="250dp"
        android:backgroundTint="#CDDC39"
        android:text="J" />

    <androidx.constraintlayout.helper.widget.Flow
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintBottom_toBottomOf="parent"
        app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    />

</androidx.constraintlayout.widget.ConstraintLayout>
```
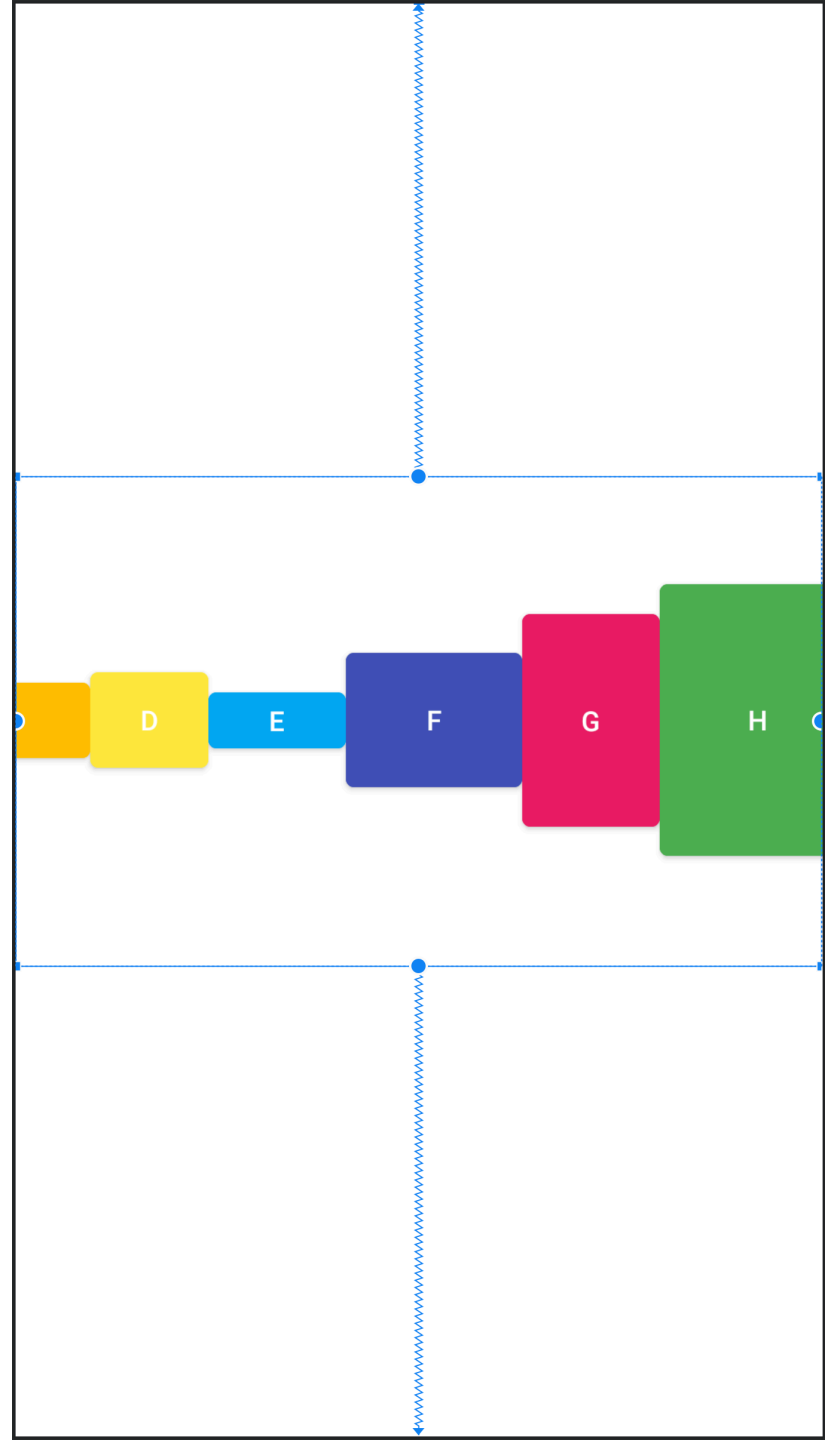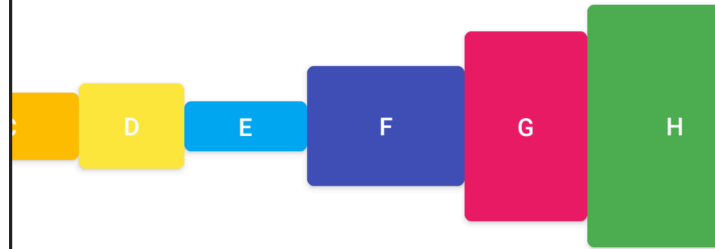
android:orientation
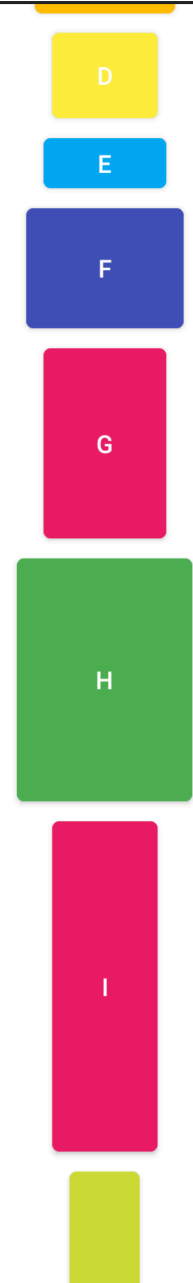
- **horizontal**
- **vertical**

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="horizontal"
/>
```

horizontal | vertical

horizontal

vertical

app:flow_wrapMode
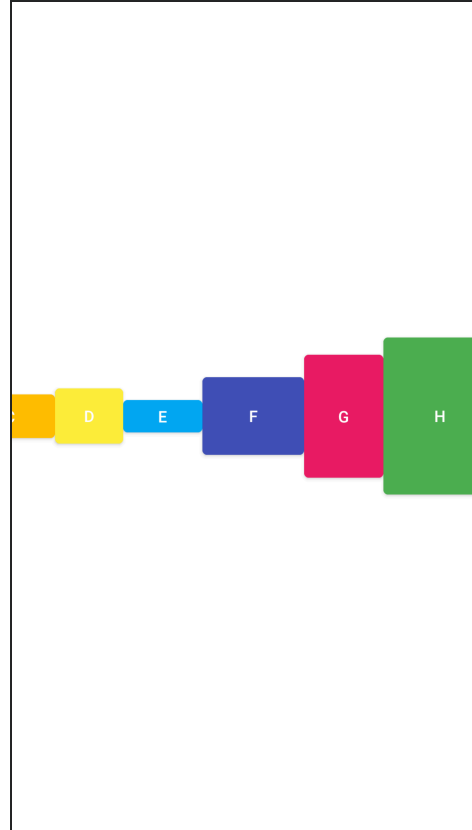- **none**
- **chain**
- **aligned**

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="horizontal"
    app:flow_wrapMode="none"
/>
```
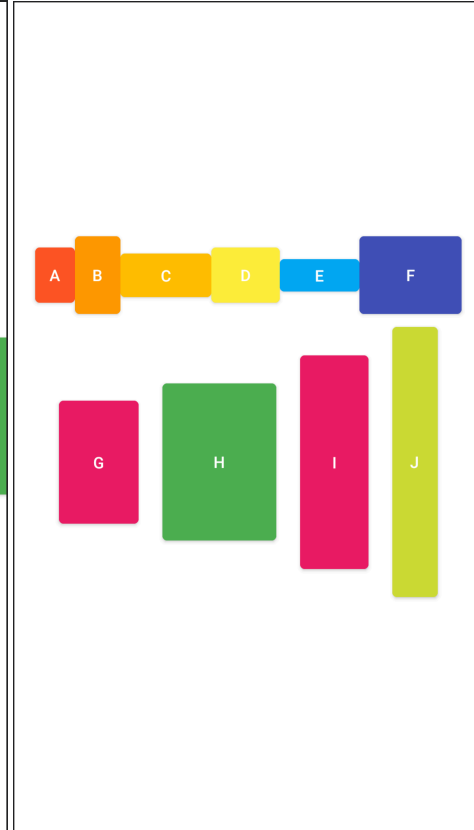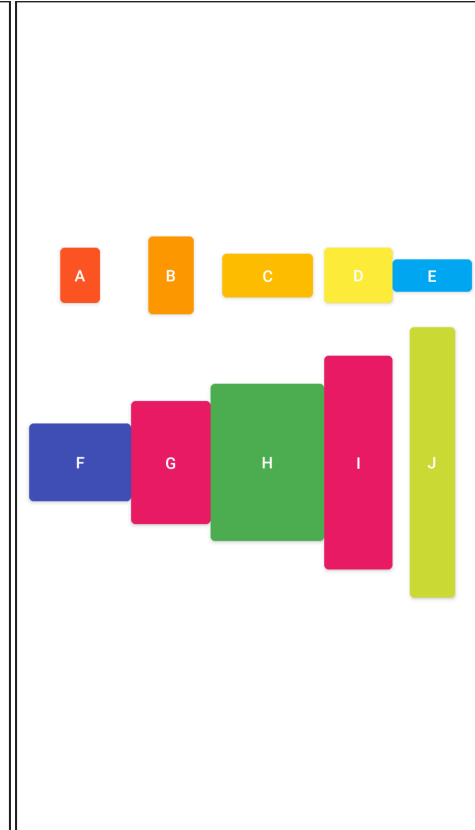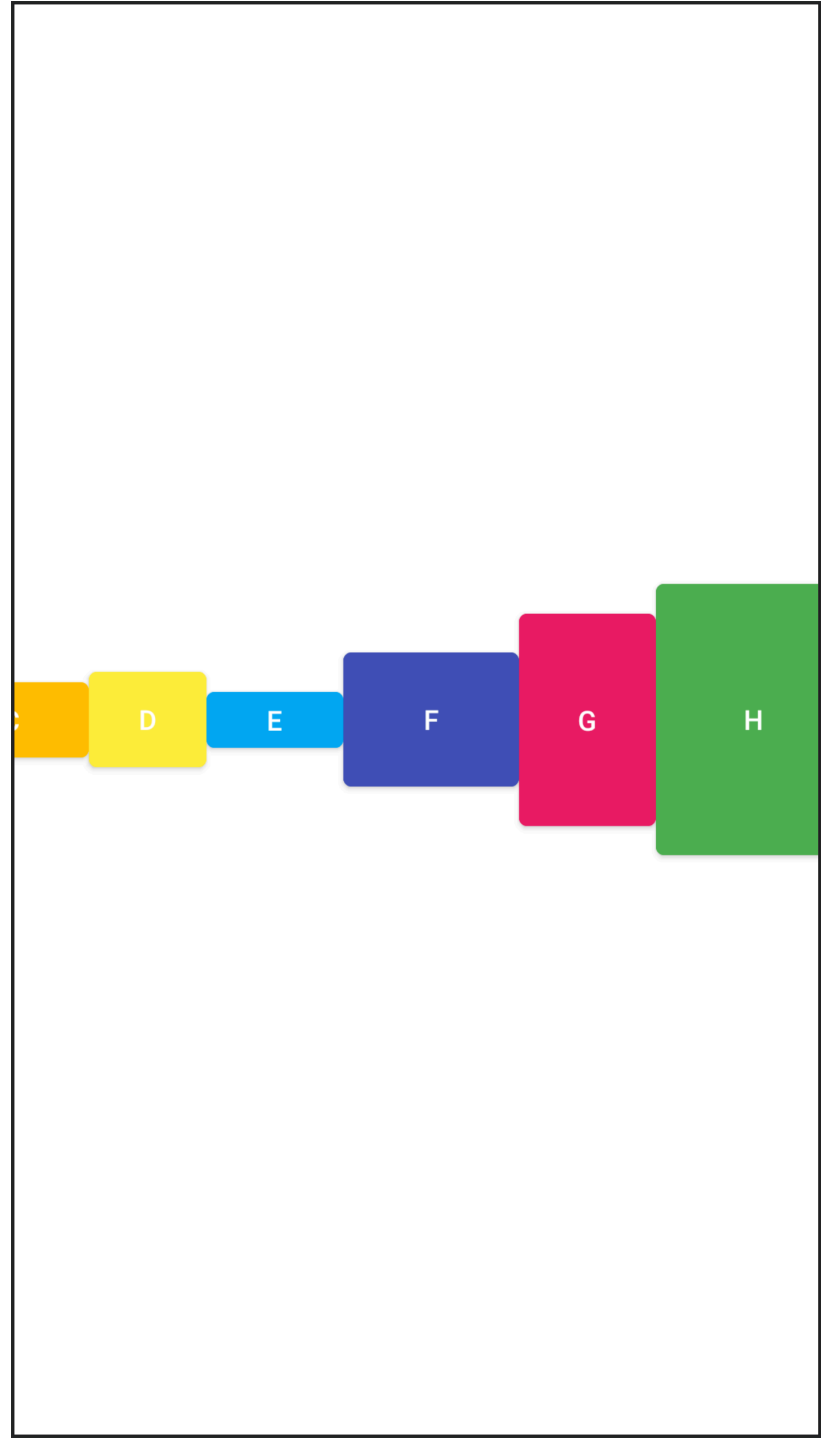
none | chain | aligned

chain

aligned

app:flow_wrapMode

- **none**
- chain
- aligned

```
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="horizontal"
    app:flow_wrapMode="none"
/>
```

none | chain | aligned

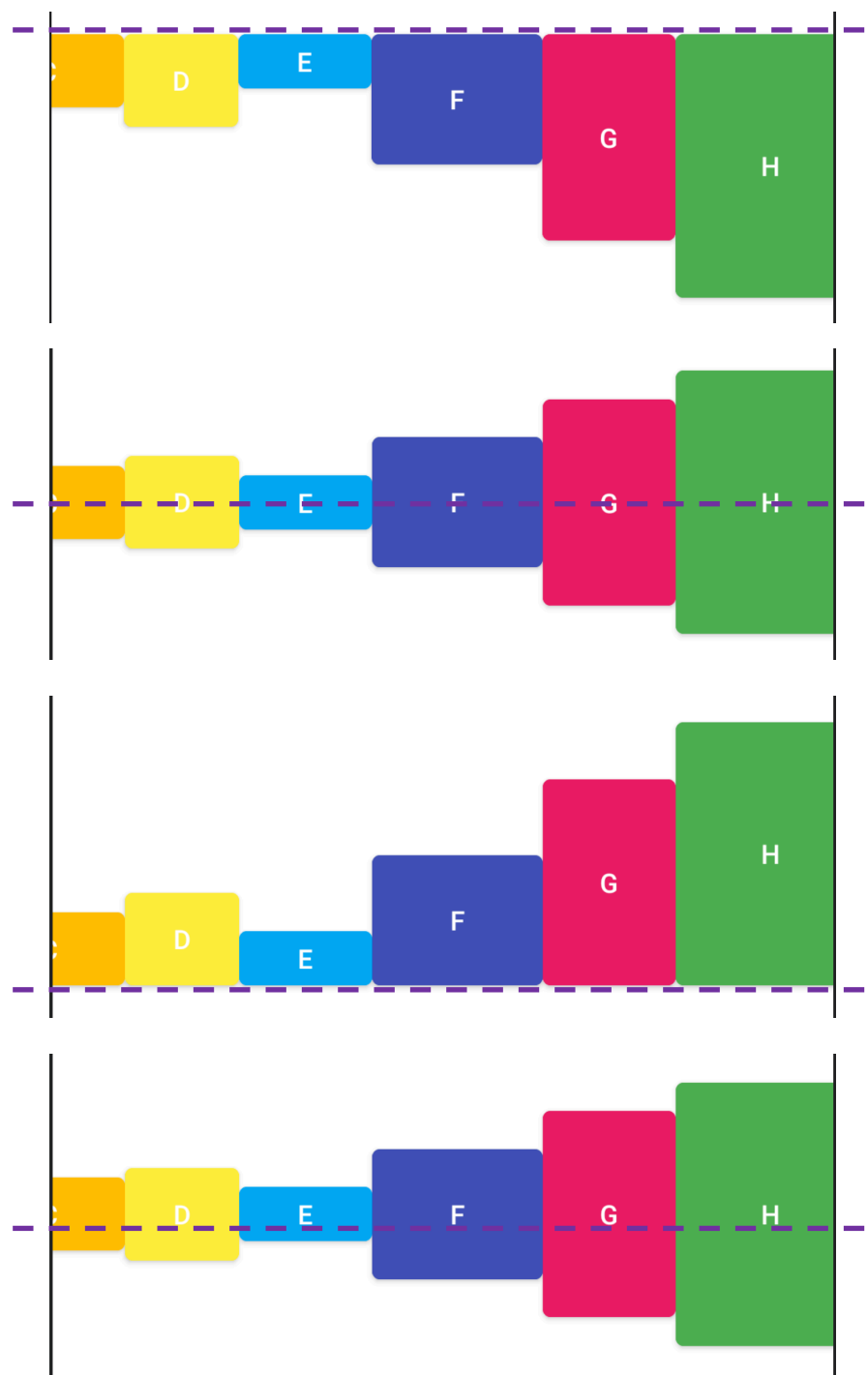**app**:flow_wrapMode
- **none**
- chain
- aligned

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="horizontal"
    app:flow_wrapMode="none"
    app:flow_verticalAlign="top"    top | center | bottom | baseline
/>
```
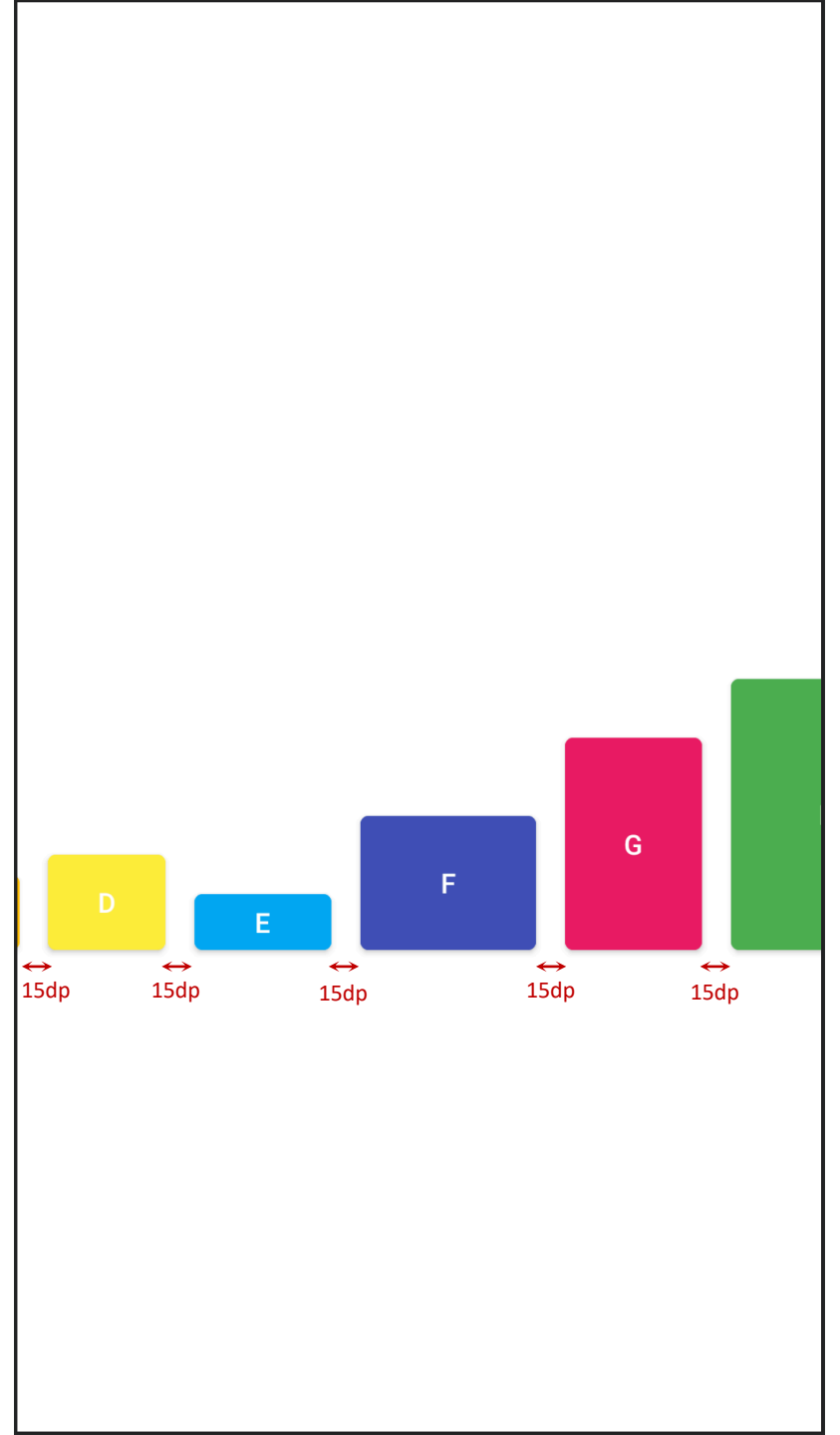
top

center

bottom

baseline

app:flow_wrapMode

- **none**
- chain
- aligned

```
<androidx.constraintlayout.helper.widget.Flow
android:layout_width="wrap_content"
android:layout_height="0dp"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintBottom_toBottomOf="parent"
app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
app:flow_wrapMode="none"
android:orientation="horizontal"
app:flow_verticalAlign="bottom"
app:flow_horizontalGap="15dp"
/>
```
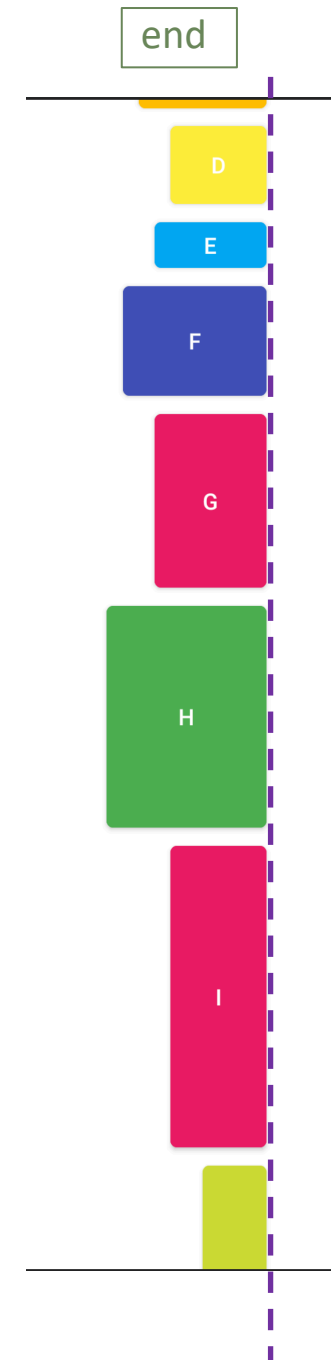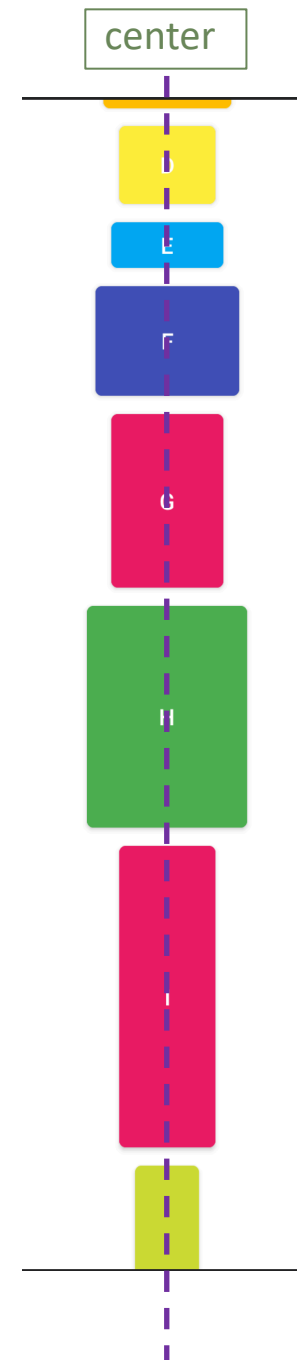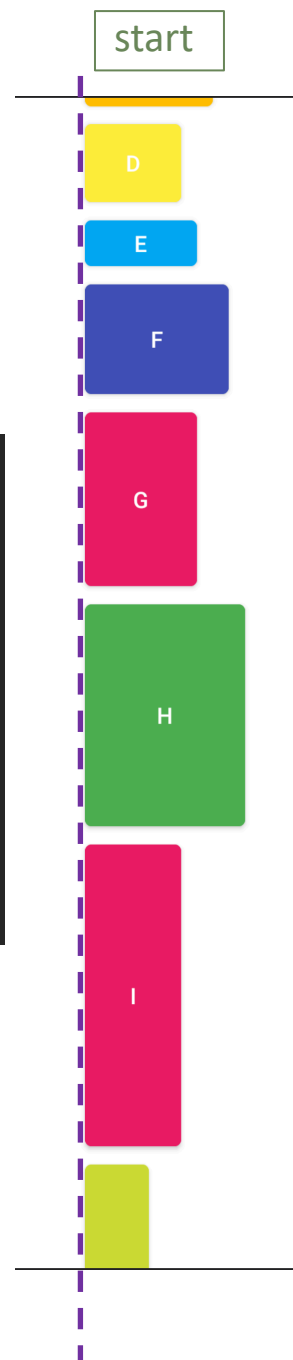
app:flow_wrapMode
- **none**
- chain
- aligned

```
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    app:flow_wrapMode="none"
    android:orientation="vertical"
    app:flow_horizontalAlign="start"    start | center | end
/>
```
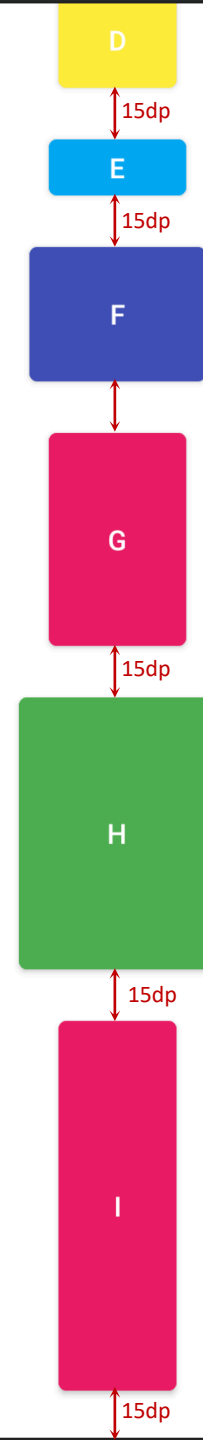
app:flow_wrapMode

- **none**
- chain
- aligned

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    app:flow_wrapMode="none"
    android:orientation="vertical"
    app:flow_verticalGap="15dp"
/>
```

app:flow_wrapMode
- none
- **chain**
- aligned

```
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    app:flow_wrapMode="chain"
/>
```
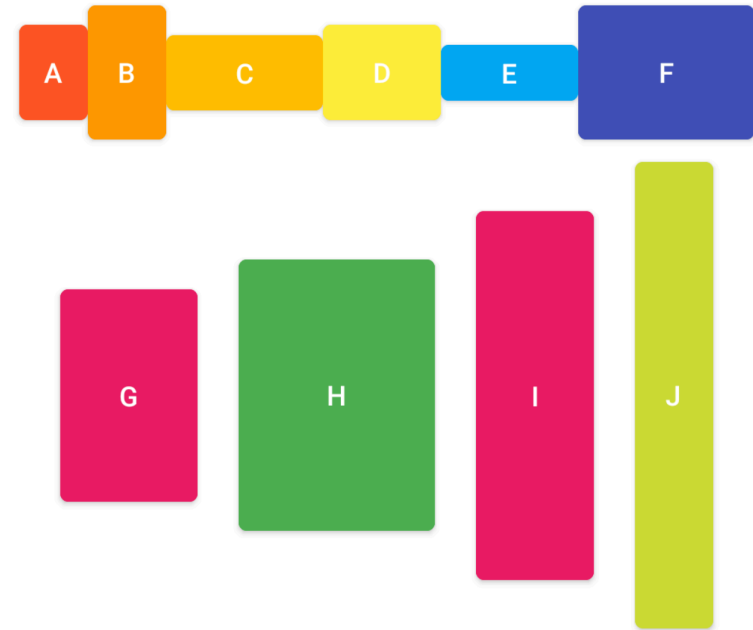
none | **chain** | aligned

app:flow_wrapMode
- none
- **chain**
- aligned

```
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    app:flow_wrapMode="chain"
    android:orientation="horizontal"
                          horizontal | vertical
/>
```
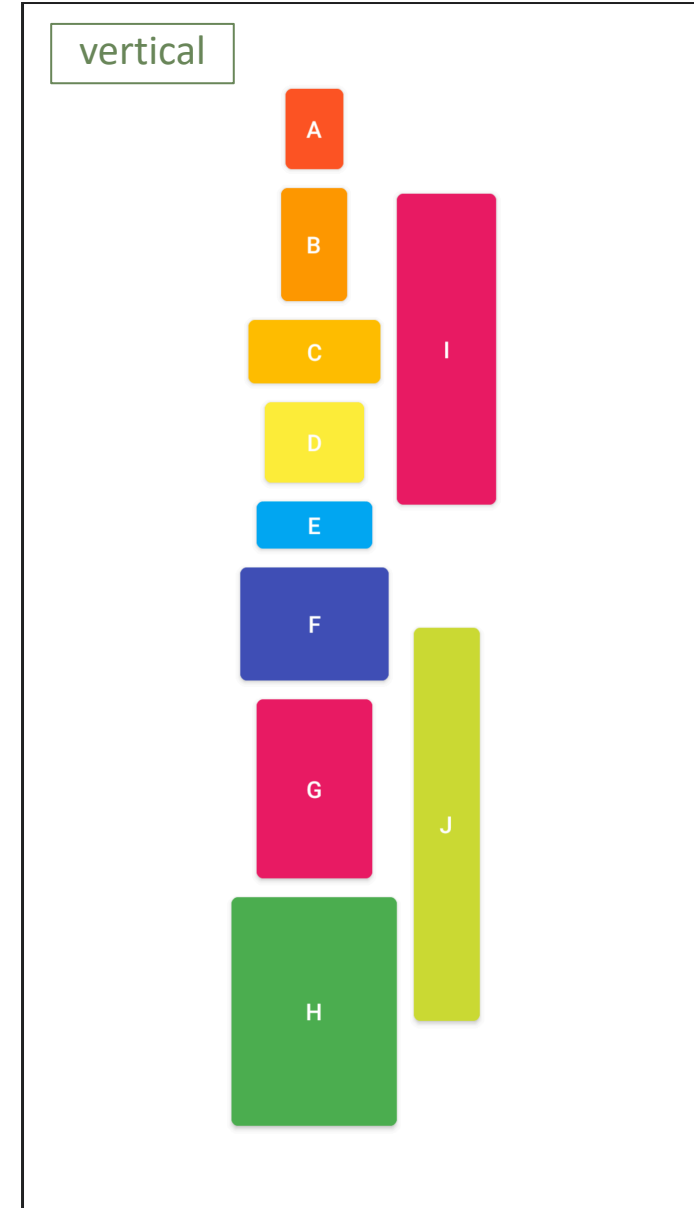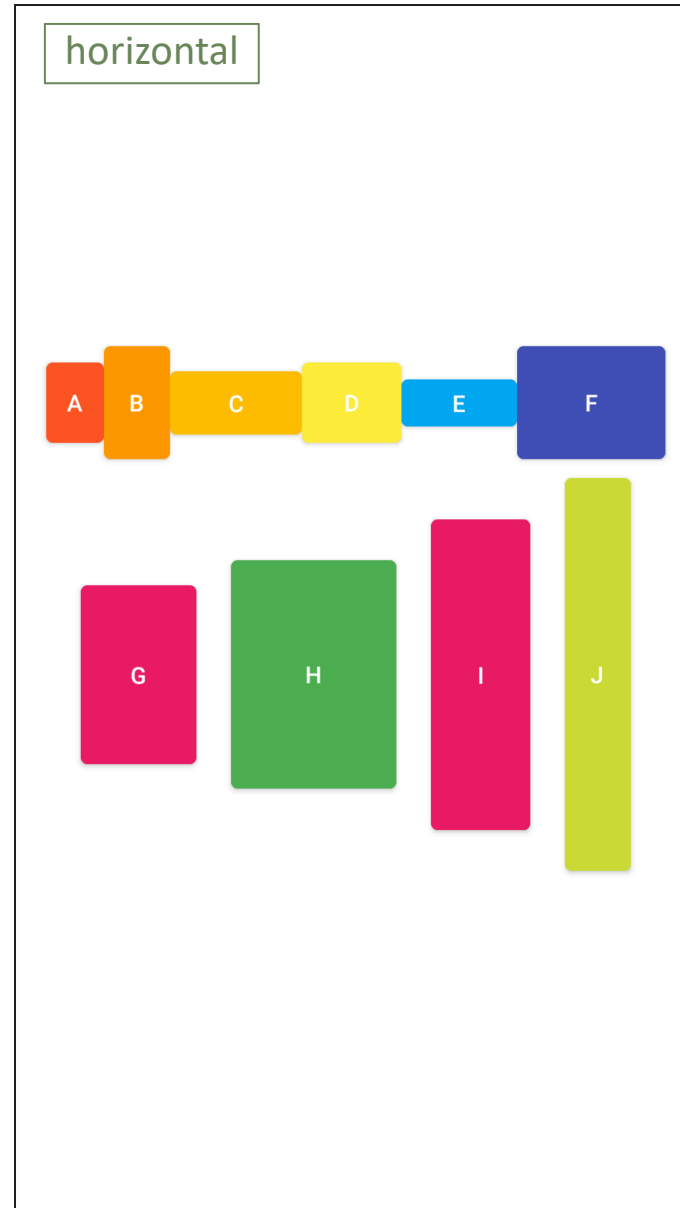
horizontal

vertical

app:flow_wrapMode
- none
- **chain**
- aligned

```
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    app:flow_wrapMode="chain"
    app:flow_maxElementsWrap="4"

    android:orientation=" horizontal | vertical "

/>
```
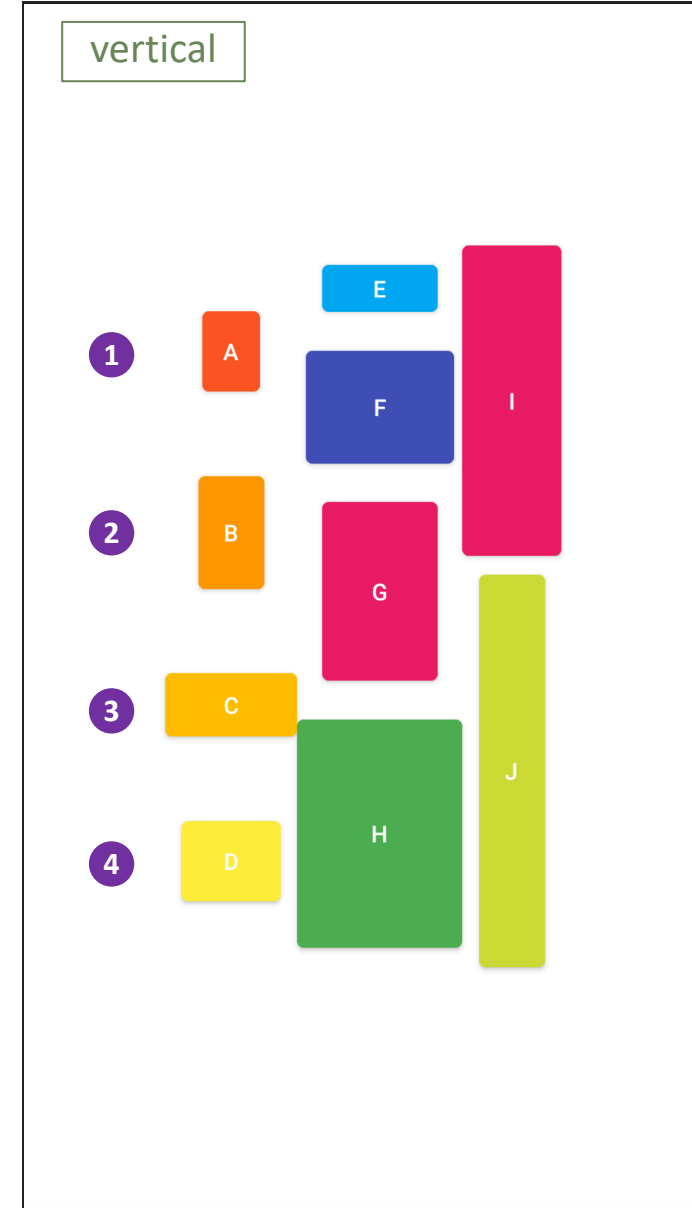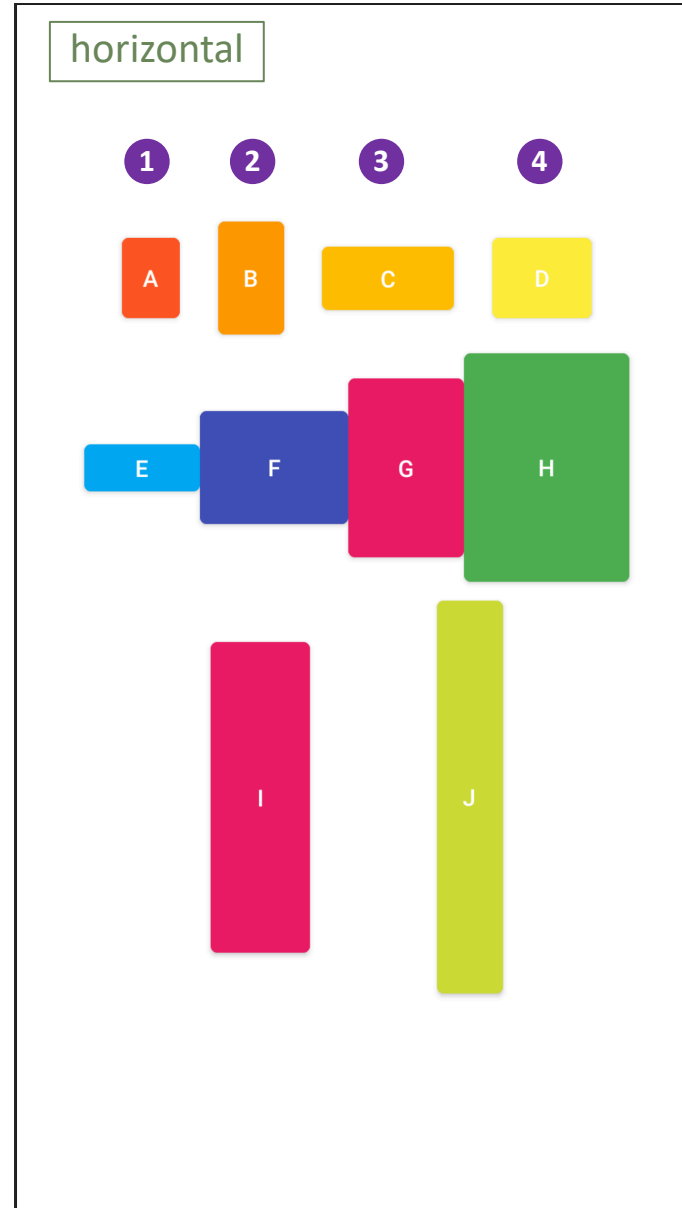
app:flow_wrapMode
- none
- **chain**
- aligned

```
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="vertical"
    app:flow_wrapMode="chain"
    app:flow_maxElementsWrap="4"
    app:flow_horizontalAlign="start"
    app:flow_horizontalGap="60dp"
    app:flow_verticalStyle="spread"
/>
```

spread | spread_inside | packed

app:flow_wrapMode

- none
- **chain**
- aligned

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="vertical"
    app:flow_wrapMode="chain"
    app:flow_maxElementsWrap="4"
    app:flow_horizontalAlign="start"
    app:flow_horizontalGap="60dp"
    app:flow_verticalStyle="spread_inside"
/>
```
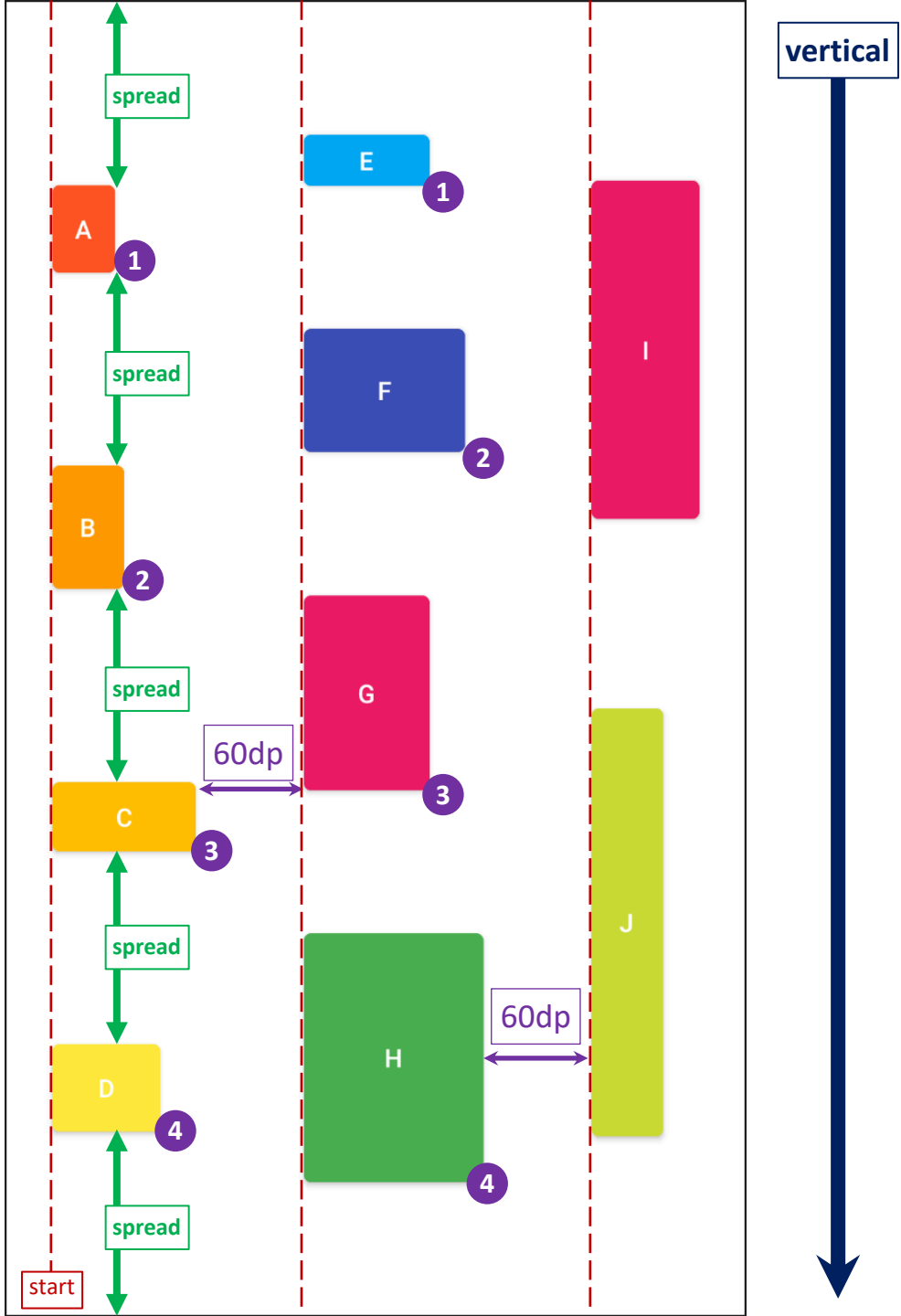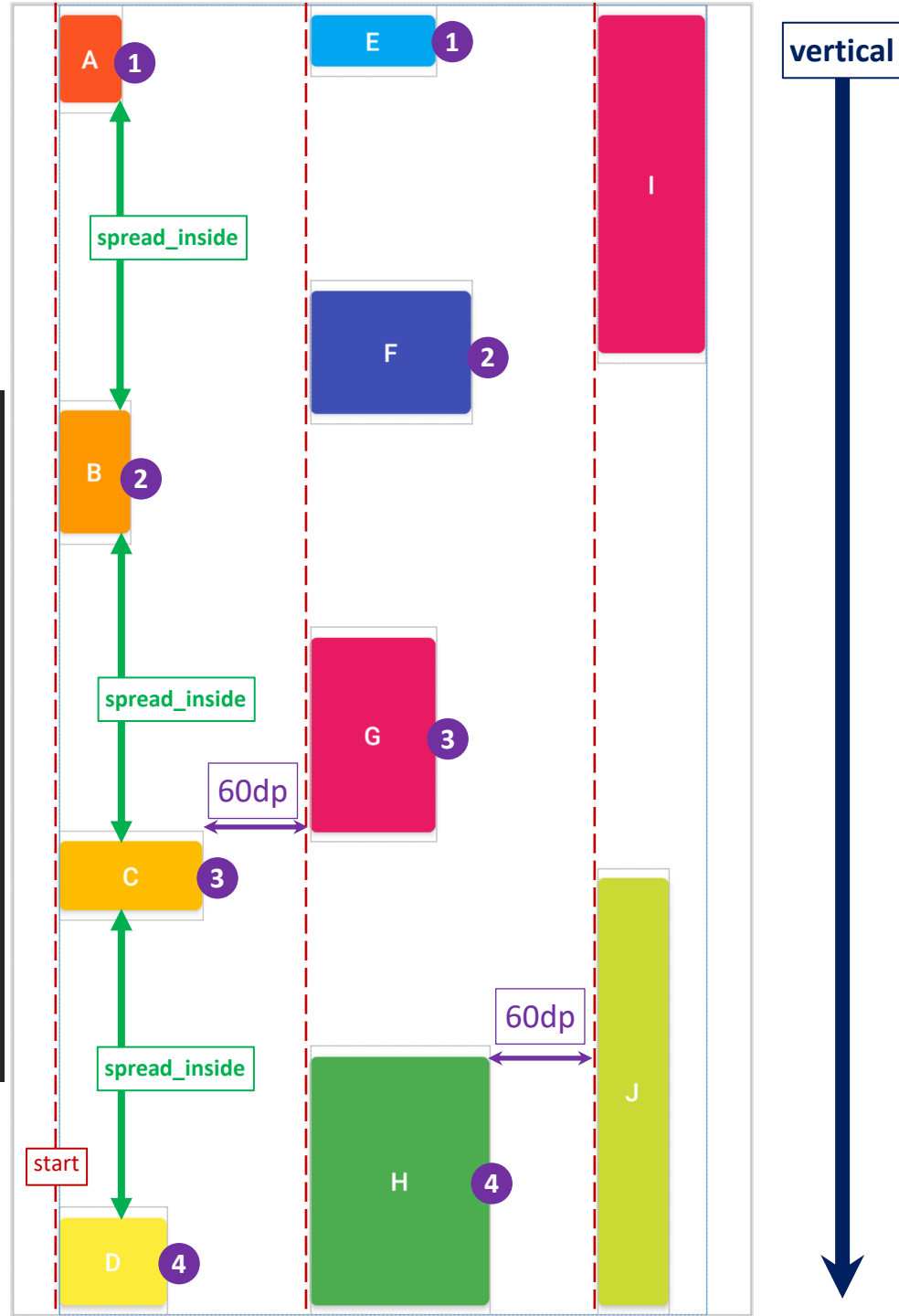
spread | **spread_inside** | packed

app:flow_wrapMode

- none
- **chain**
- aligned

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="vertical"
    app:flow_wrapMode="chain"
    app:flow_maxElementsWrap="4"
    app:flow_horizontalAlign="start"
    app:flow_horizontalGap="60dp"
    app:flow_verticalStyle="packed"
/>
```
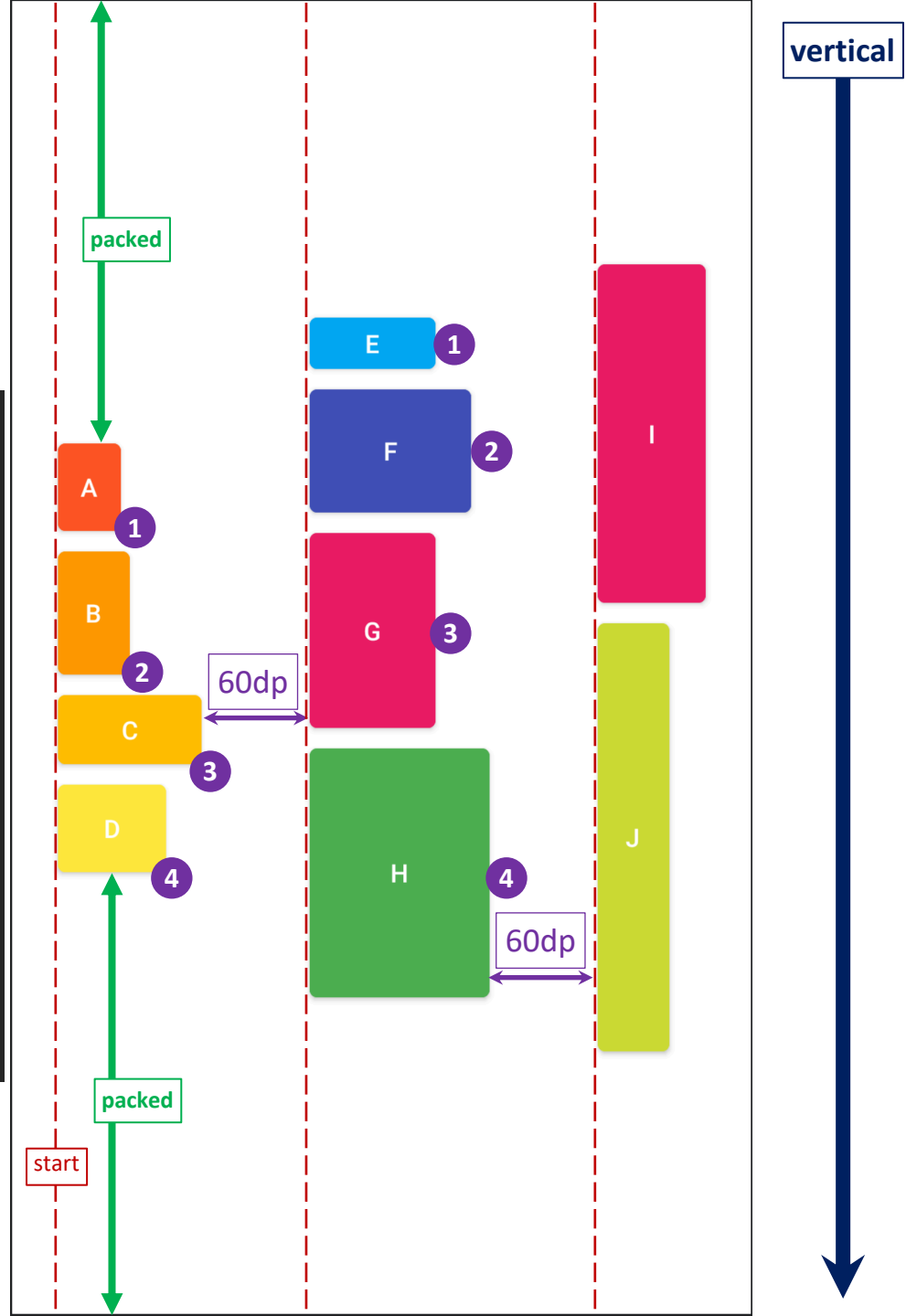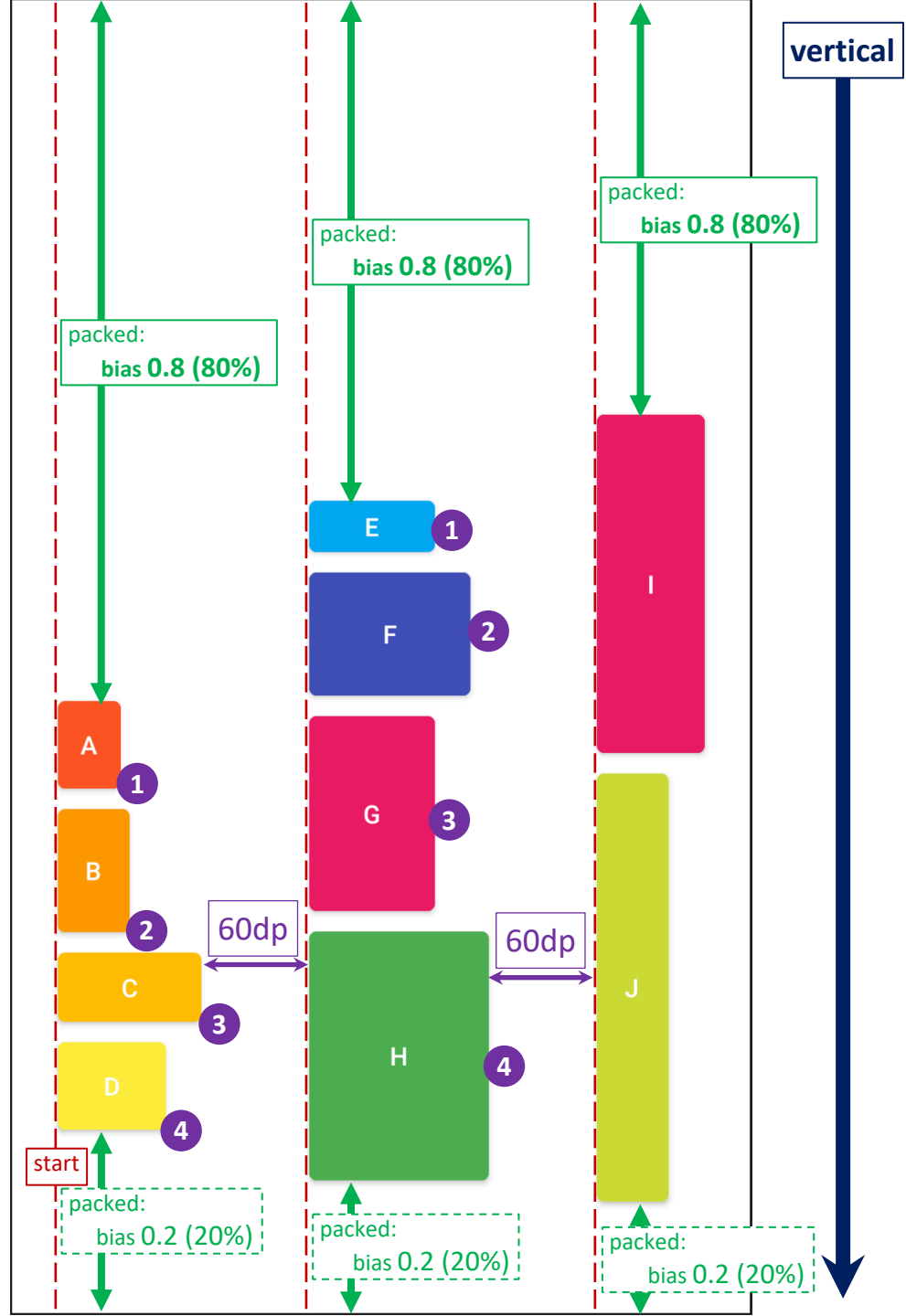
spread | spread_inside | **packed**

app:flow_wrapMode
- none
- **chain**
- aligned

```xml
<androidx.constraintlayout.helper.widget.Flow
        android:layout_width="wrap_content"
        android:layout_height="0dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintBottom_toBottomOf="parent"
        app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
        android:orientation="vertical"
        app:flow_wrapMode="chain"
        app:flow_maxElementsWrap="4"
        app:flow_horizontalAlign="start"
        app:flow_horizontalGap="60dp"
        app:flow_verticalStyle="packed"
        app:flow_verticalBias="0.8"
/>
```

spread | spread_inside | **packed**

vertical

packed:
bias **0.8 (80%)**

packed:
bias **0.8 (80%)**

packed:
bias **0.8 (80%)**

E 1
F 2
G 3
H 4
A 1
B 2
C 3
D 4
I
J

60dp   60dp

start

packed:
bias 0.2 (20%)

packed:
bias 0.2 (20%)

packed:
bias 0.2 (20%)

app:flow_wrapMode
- none
- **chain**
- aligned

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="vertical"
    app:flow_wrapMode="chain"
    app:flow_maxElementsWrap="4"
    app:flow_horizontalAlign="start"
    app:flow_horizontalGap="60dp"
    app:flow_firstVerticalStyle="spread_inside"
    app:flow_verticalStyle="packed"
    app:flow_lastVerticalStyle="spread"
/>
```
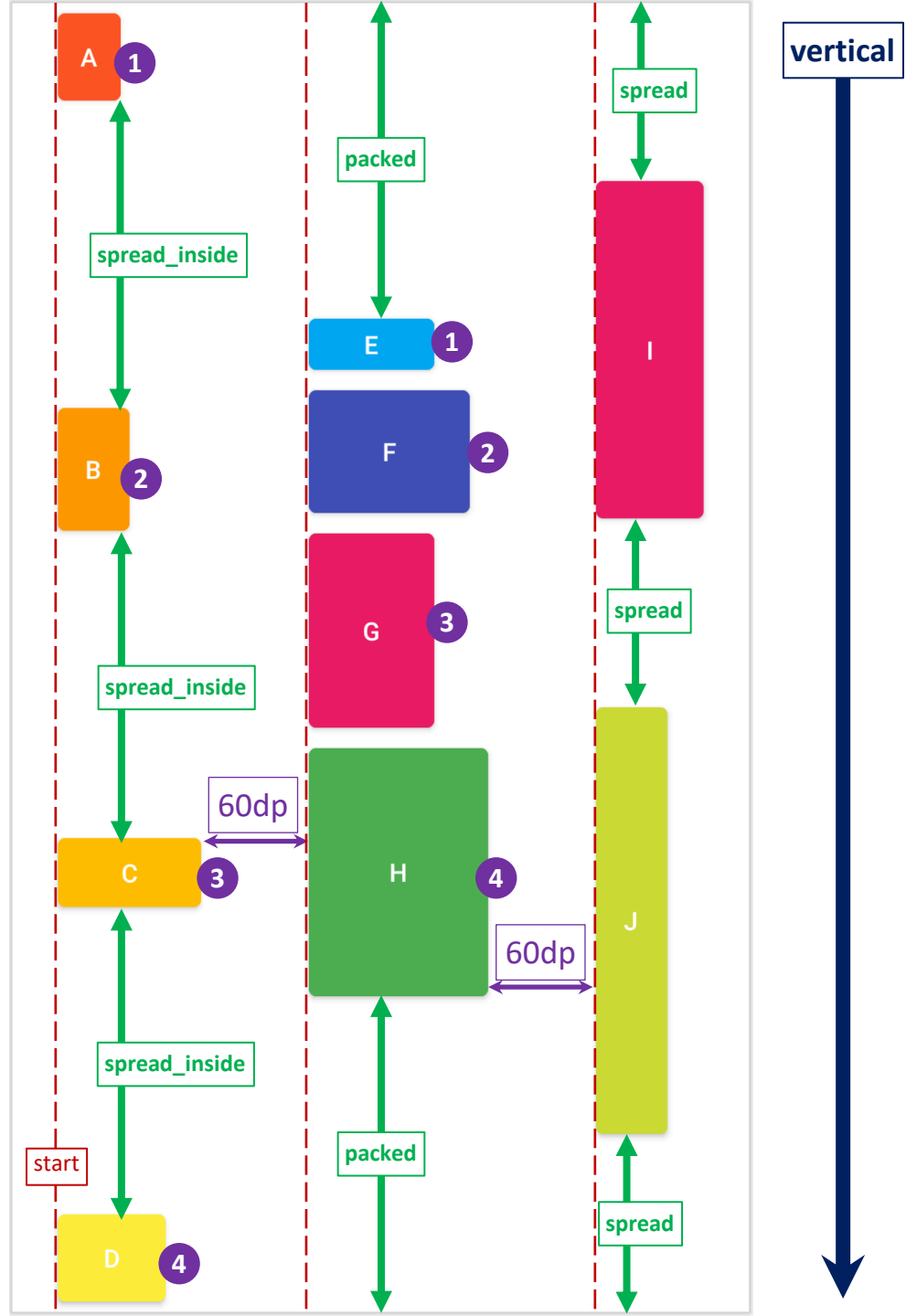
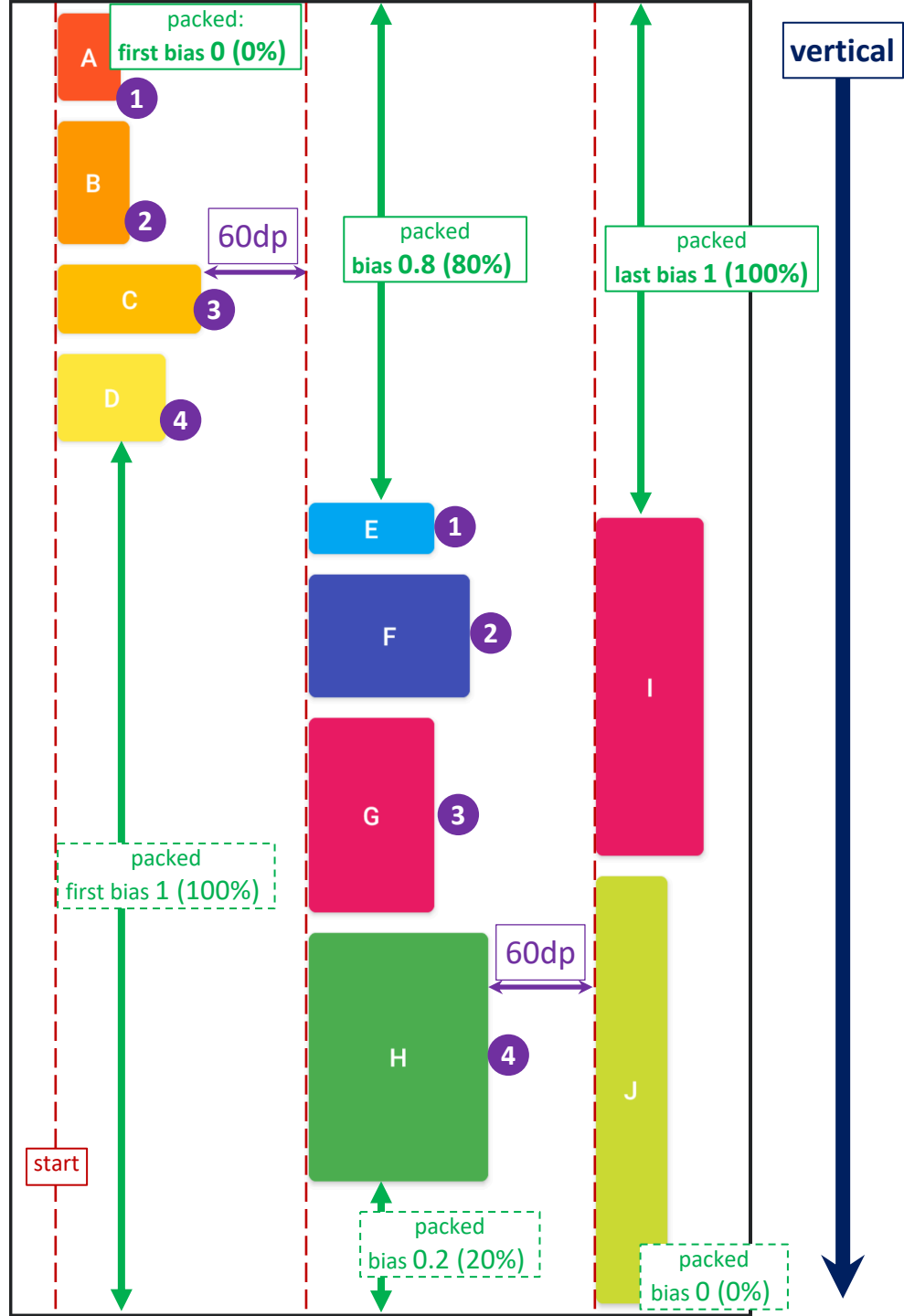**app:flow_wrapMode**
- none
- **chain**
- aligned

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="vertical"
    app:flow_wrapMode="chain"
    app:flow_maxElementsWrap="4"
    app:flow_horizontalAlign="start"
    app:flow_horizontalGap="60dp"

    app:flow_firstVerticalStyle="packed"
    app:flow_firstVerticalBias="0"

    app:flow_verticalStyle="packed"
    app:flow_verticalBias="0.8"

    app:flow_lastVerticalStyle="packed"
    app:flow_lastVerticalBias="1"
/>
```
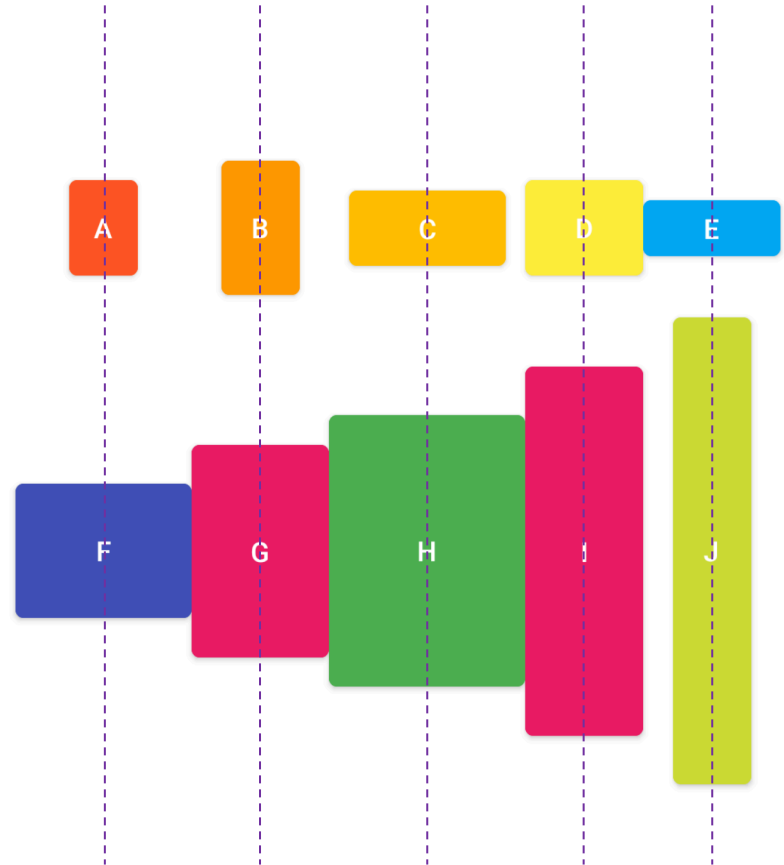
vertical

packed:
first bias 0 (0%)

A 1

B 2

60dp

C 3

packed
bias 0.8 (80%)

packed
last bias 1 (100%)

D 4

E 1

F 2

I

packed
first bias 1 (100%)

G 3

60dp

start

H 4

J

packed
bias 0.2 (20%)

packed
bias 0 (0%)

app:flow_wrapMode

- none
- chain
- **aligned**

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="horizontal"
    app:flow_wrapMode="aligned"
/>
```

none | chain | **aligned**

app:flow_wrapMode
- none
- chain
- **aligned**

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="horizontal"

    app:flow_wrapMode="aligned"
    app:flow_maxElementsWrap="4"
/>
```
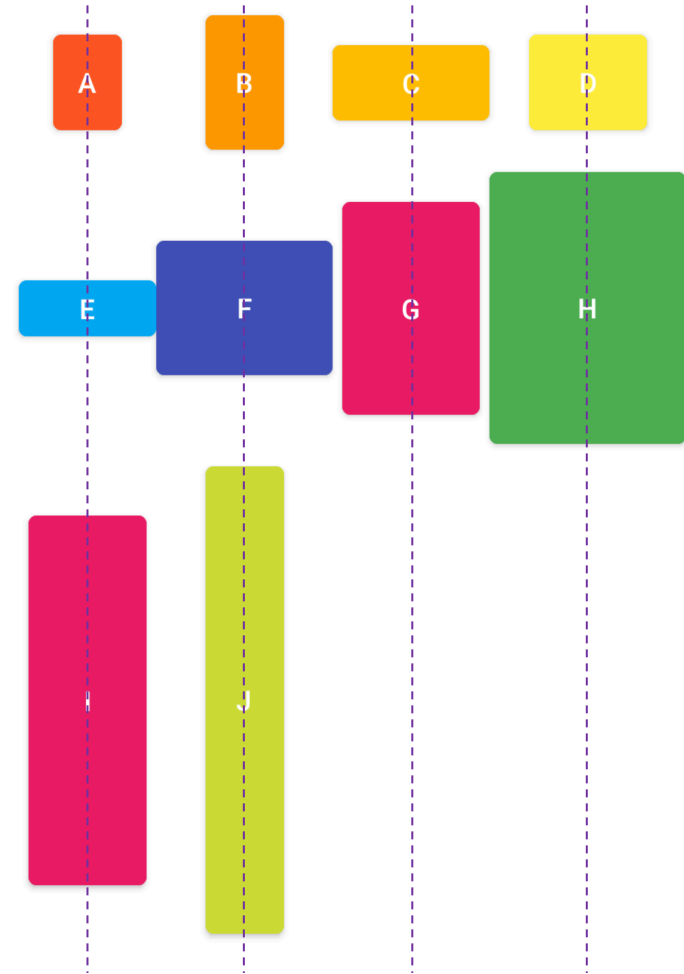
app:flow_wrapMode
- none
- chain
- **aligned**

```xml
<androidx.constraintlayout.helper.widget.Flow
    android:layout_width="wrap_content"
    android:layout_height="0dp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintBottom_toBottomOf="parent"
    app:constraint_referenced_ids="btA,btB,btC,btD,btE,btF,btG,btH,btI,btJ"
    android:orientation="horizontal"
    app:flow_wrapMode="aligned"
    app:flow_maxElementsWrap="4"

    android:orientation=" horizontal | vertical "
/>
```