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|  | **SUKKUR IBA UNIVERSITY**  MERIT – QUALITY – EXCELLENCE  Lab handout 06 | | | |  |
| Mobile Application Development (CSE-426), Fall 2022, BE-EE(CS)-VIII | | | | | |
| Name: Shakir Ali | | CMS ID#: 031-19-0009 | | Instructor: Dr. Abdul Aziz | |
| Section: A Lab group: NA | | Department: Electrical Engineering | | Marks obtained out of 100% | |
| **NOTE: Must follow submission instructions** | | |  | | |

**Understanding and using constraint layout**

**Lab Exercise and Submission**

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| Exercise 1 |
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| Develop following layout using constraint layout and mentioned attributes in the figure. |
| Screenshot of AVD output here: |
| Insert XML codes here:  *<?*xml version="1.0" encoding="utf-8"*?>* <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  xmlns:app="http://schemas.android.com/apk/res-auto"  xmlns:tools="http://schemas.android.com/tools"  android:layout\_width="match\_parent"  android:layout\_height="match\_parent"  tools:context=".MainActivity">    <Button  android:id="@+id/button"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:text="Button"  app:layout\_constraintEnd\_toEndOf="parent"  app:layout\_constraintTop\_toTopOf="parent" /> </androidx.constraintlayout.widget.ConstraintLayout> |

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| Exercise 2 |
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| Develop following layout using constraint layout and mentioned attributes in the figure. |
| Screenshot of AVD output here: |
| Insert XML codes here:  *<?*xml version="1.0" encoding="utf-8"*?>* <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  xmlns:app="http://schemas.android.com/apk/res-auto"  xmlns:tools="http://schemas.android.com/tools"  android:layout\_width="match\_parent"  android:layout\_height="match\_parent"  tools:context=".MainActivity">    <Button  android:id="@+id/button"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_marginTop="664dp"  android:layout\_marginEnd="232dp"  android:text="Button"  app:layout\_constraintEnd\_toEndOf="parent"  app:layout\_constraintTop\_toTopOf="parent" /> </androidx.constraintlayout.widget.ConstraintLayout> |

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| Exercise 3 |
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| Develop following layout using constraint layout and mentioned attributes in the figure. |
| Screenshot of AVD output here: |
| Insert XML codes here:  *<?*xml version="1.0" encoding="utf-8"*?>* <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  xmlns:tools="http://schemas.android.com/tools"  android:layout\_width="0dp"  android:layout\_height="0dp"  android:paddingLeft="16dp"  android:paddingRight="16dp"  android:paddingTop="16dp"  android:paddingBottom="16dp"  android:orientation="vertical"  tools:context=".MainActivity">  <Button  android:id="@+id/button"  android:layout\_width="match\_parent"  android:layout\_height=" match\_parent "  android:text="Button"/> </LinearLayout> |

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| Exercise 4 |
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| Develop following layout using constraint layout and mentioned attributes in the figure. |
| Screenshot of AVD output here: |
| Insert XML codes here:  *<?*xml version="1.0" encoding="utf-8"*?>* <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  xmlns:app="http://schemas.android.com/apk/res-auto"  xmlns:tools="http://schemas.android.com/tools"  android:layout\_width="match\_parent"  android:layout\_height="match\_parent"  tools:context=".MainActivity">    <Button  android:id="@+id/button"  android:layout\_width="match\_parent"  android:layout\_height="wrap\_content"  android:layout\_marginTop="340dp"  android:layout\_weight="1"  android:text="Button"  app:layout\_constraintEnd\_toEndOf="parent"  app:layout\_constraintTop\_toTopOf="parent" /> </androidx.constraintlayout.widget.ConstraintLayout> |

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| Exercise 5 |
| Using constraint layout explore different alignment options and submit obtained results. |
| Attach AVD application output here: |
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| Insert XML file code here: |
| *<?*xml version="1.0" encoding="utf-8"*?>* <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  xmlns:app="http://schemas.android.com/apk/res-auto"  xmlns:tools="http://schemas.android.com/tools"  android:layout\_width="match\_parent"  android:layout\_height="match\_parent"  tools:context=".MainActivity">   <Button  android:id="@+id/button"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_marginStart="100dp"  android:layout\_marginTop="92dp"  android:text="Button"  app:layout\_constraintStart\_toStartOf="parent"  app:layout\_constraintTop\_toTopOf="parent" />   <Button  android:id="@+id/button2"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_marginTop="20dp"  android:text="Button"  app:layout\_constraintStart\_toStartOf="@+id/button"  app:layout\_constraintTop\_toBottomOf="@+id/button" /> </androidx.constraintlayout.widget.ConstraintLayout> |

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| Exercise 6 |
| Align and partition views using guidelines. |
| Attach AVD application output here: |
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| Insert XML file code here: |
| *<?*xml version="1.0" encoding="utf-8"*?>* <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  xmlns:app="http://schemas.android.com/apk/res-auto"  xmlns:tools="http://schemas.android.com/tools"  android:layout\_width="match\_parent"  android:layout\_height="match\_parent"  tools:context=".MainActivity">   <Button  android:id="@+id/button"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_marginStart="100dp"  android:layout\_marginTop="96dp"  android:text="Button"  app:layout\_constraintEnd\_toStartOf="@+id/guideline2"  app:layout\_constraintHorizontal\_bias="0.0"  app:layout\_constraintStart\_toStartOf="parent"  app:layout\_constraintTop\_toTopOf="parent" />   <Button  android:id="@+id/button2"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_marginTop="20dp"  android:text="Button"  app:layout\_constraintStart\_toStartOf="@+id/button"  app:layout\_constraintTop\_toBottomOf="@+id/button" />   <androidx.constraintlayout.widget.Guideline  android:id="@+id/guideline2"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:orientation="vertical"  app:layout\_constraintGuide\_begin="226dp" /> </androidx.constraintlayout.widget.ConstraintLayout> |

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| Exercise 7 |
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| Make use of horizontal barrier to let be button go down while multiline text is taking more space.          Make sure that **app:barrierDirection="bottom"**      Search for button’s layout\_constraintTop\_toBottomOf=”@id/barrier” attribute in the Attributes panel, and change its value to the barrier’s ID |
| Screenshot of AVD output here: |
| Insert XML file code here:  *<?*xml version="1.0" encoding="utf-8"*?>* <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  xmlns:app="http://schemas.android.com/apk/res-auto"  xmlns:tools="http://schemas.android.com/tools"  android:layout\_width="match\_parent"  android:layout\_height="match\_parent"  tools:context=".MainActivity">   <EditText  android:id="@+id/editTextTextMultiLine"  android:layout\_width="177dp"  android:layout\_height="131dp"  android:ems="10"  android:gravity="start|top"  android:inputType="textMultiLine"  app:layout\_constraintBottom\_toBottomOf="parent"  app:layout\_constraintEnd\_toStartOf="@+id/guideline3"  app:layout\_constraintHorizontal\_bias="0.296"  app:layout\_constraintStart\_toStartOf="parent"  app:layout\_constraintTop\_toTopOf="parent"  app:layout\_constraintVertical\_bias="0.025" />   <Button  android:id="@+id/button4"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_marginStart="156dp"  android:layout\_marginTop="188dp"  android:text="Button"  app:layout\_constraintStart\_toStartOf="parent"  app:layout\_constraintTop\_toTopOf="parent" />   <EditText  android:id="@+id/editTextTextMultiLine2"  android:layout\_width="202dp"  android:layout\_height="135dp"  android:layout\_marginStart="4dp"  android:layout\_marginBottom="580dp"  android:ems="10"  android:gravity="start|top"  android:inputType="textMultiLine"  app:layout\_constraintBottom\_toBottomOf="parent"  app:layout\_constraintStart\_toStartOf="@+id/guideline3" />   <androidx.constraintlayout.widget.Barrier  android:id="@+id/barrier2"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  app:barrierDirection="bottom"  app:constraint\_referenced\_ids="editTextTextMultiLine2,editTextTextMultiLine"  tools:layout\_editor\_absoluteY="103dp" />   <androidx.constraintlayout.widget.Guideline  android:id="@+id/guideline3"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:orientation="vertical"  app:layout\_constraintGuide\_begin="216dp" /> </androidx.constraintlayout.widget.ConstraintLayout> |

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| Exercise 8 |
| Create horizontal chain for views in constraint layout. |
| Attach AVD application output here: |
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| Insert XML file code here: |
| *<?*xml version="1.0" encoding="utf-8"*?>* <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  xmlns:app="http://schemas.android.com/apk/res-auto"  xmlns:tools="http://schemas.android.com/tools"  android:layout\_width="match\_parent"  android:layout\_height="match\_parent"  tools:context=".MainActivity">   <Button  android:id="@+id/button5"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_marginStart="44dp"  android:layout\_marginTop="64dp"  android:text="Button"  app:layout\_constraintEnd\_toStartOf="@+id/button6"  app:layout\_constraintHorizontal\_bias="0.5"  app:layout\_constraintStart\_toStartOf="parent"  app:layout\_constraintTop\_toTopOf="parent" />   <Button  android:id="@+id/button6"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:text="Button"  app:layout\_constraintEnd\_toStartOf="@+id/button7"  app:layout\_constraintHorizontal\_bias="0.5"  app:layout\_constraintStart\_toEndOf="@+id/button5"  app:layout\_constraintTop\_toTopOf="@+id/button5" />   <Button  android:id="@+id/button7"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:text="Button"  app:layout\_constraintEnd\_toEndOf="parent"  app:layout\_constraintHorizontal\_bias="0.5"  app:layout\_constraintStart\_toEndOf="@+id/button6"  app:layout\_constraintTop\_toTopOf="@+id/button6" /> </androidx.constraintlayout.widget.ConstraintLayout> |

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| Exercise 8 |
| In the above horizontal chained constraint layout, right-click on one of the buttons in the horizontal chain, select the Chains option from the menu that appears, and then choose Horizontal Chain Style. What happens to the views when you choose (i) Spread (ii) Spread inside (iii) Packed? Draw the blueprint for each option below, and describe how it arranges the views. |
| Attach AVD application output here: |
|  |
| Insert XML file code here: |
| *<?*xml version="1.0" encoding="utf-8"*?>* <androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  xmlns:app="http://schemas.android.com/apk/res-auto"  xmlns:tools="http://schemas.android.com/tools"  android:layout\_width="match\_parent"  android:layout\_height="match\_parent"  tools:context=".MainActivity">   <Button  android:id="@+id/button5"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_marginStart="44dp"  android:layout\_marginTop="64dp"  android:text="Button"  app:layout\_constraintEnd\_toStartOf="@+id/button6"  app:layout\_constraintHorizontal\_bias="0.5"  app:layout\_constraintHorizontal\_chainStyle="packed"  app:layout\_constraintStart\_toStartOf="parent"  app:layout\_constraintTop\_toTopOf="parent" />   <Button  android:id="@+id/button6"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:text="Button"  app:layout\_constraintEnd\_toStartOf="@+id/button7"  app:layout\_constraintHorizontal\_bias="0.5"  app:layout\_constraintStart\_toEndOf="@+id/button5"  app:layout\_constraintTop\_toTopOf="@+id/button5" />   <Button  android:id="@+id/button7"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:text="Button"  app:layout\_constraintEnd\_toEndOf="parent"  app:layout\_constraintHorizontal\_bias="0.5"  app:layout\_constraintStart\_toEndOf="@+id/button6"  app:layout\_constraintTop\_toTopOf="@+id/button6" /> </androidx.constraintlayout.widget.ConstraintLayout> |