Q2

**class** Model {

**var** *score*: Double= 0.0

**def** displayField(): Double = {

**this**.*score*

}

**def** reward(value: Int): Unit = {

**this**.*score* += value

}

**def** hit(value: Int): Unit = {

**if**(**this**.*score* <= 5) {

**this**.*score* += value/2

  }

**else** {

**this**.*score* += value

  }

}

**def** destroy(): Unit = {

**if** (**this**.*score* > 0) {

**this**.*score* -= 10

  }

**else** {

**this**.*score* = 0

  }

}

}

**class** Controller(model:Model) {

**def** reward(event: ActionEvent): Unit = model.reward(2)

**def** hit(event: ActionEvent): Unit = model.hit(-2)

**def** destroy(event: ActionEvent): Unit = model.destroy()

**def** userAction(event: KeyEvent): Unit = {

  event.getCode.getName **match** {

**case "U"** => model.reward(4)

**case "D"** => model.hit(-4)

**case "J"** => model.reward(6)

**case "K"** => model.hit(-5)

**case "X"** => model.destroy()

**case** \_ => model.hit(-3)

  }

}

}

**class** QuizButton(display: String, action: EventHandler[ActionEvent]) **extends** Button {

**val** *size* = 200

minWidth = *size*

minHeight = *size*

onAction = action

text = display

style = **"-fx-font: 30 ariel;"**

}

**object** View **extends** JFXApp {

**val** *model*: Model = **new** Model()

**val** *controller*: Controller = **new** Controller(*model*)

**var** *textField*: TextField = **new** TextField {

  editable = **false**

style = **"-fx-font: 26 ariel;"**

text.value = *model*.displayField().toString

}

*stage* = **new** PrimaryStage {

  title = **"Quiz GUI"**

scene = **new** Scene() {

    content = *List*(

**new** GridPane {

        add(*textField*, 0, 0, 2, 1)

        add(**new** QuizButton(**"reward"**, *controller*.reward), 0, 1)

        add(**new** QuizButton(**"hit"**, *controller*.hit), 1, 1)

        add(**new** QuizButton(**"destroy"**, *controller*.destroy), 2, 1)

      }

    )

  }

  addEventFilter(KeyEvent.*KEY\_PRESSED*, *controller*.userAction)

*// update the display after every event*

addEventFilter(Event.*ANY*, (event: Event) => *textField*.text.value = *model*.displayField().toString())

}

}

Q2

For each part below, state what is displayed in the app’s text field after the sequence of inputs. You should assume that the app is restarted before each new sequence is executed.

1. The user clicks the following buttons: “reward”, “reward”, “reward”, “hit”, “hit”
2. The user presses “U”, “U”, “D”, “D”, “X”, “P”
3. The user clicks the following buttons: “reward”, “hit”, “hit”, “destroy”, “reward”, “destroy”
4. The user does the following: presses “K”, clicks “hit”, clicks “reward”, clicks “reward”, presses “J”
5. The user does the following: clicks “hit”, clicks “destroy”, presses “J”, presses “L”, presses “X”