Lab Exercises

Servlet for Handling the Client Request: Form Data

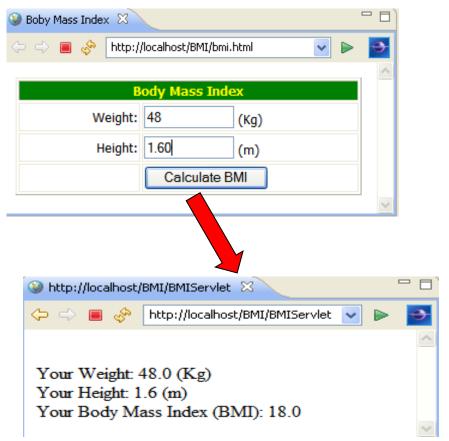# Contents

A. Body Mass Index (BMI)

- Write a servlet page that allow users enter the weight and the height of a person and then displays his/her Body Mass Index using the following formula:

$$BMI = \frac{weight}{height^2}$$

- Where weight (in kilogram) and height (in meter) are real numbers representing the weight and the height of a person. The result should be **rounded with one decimal place**.

1. Developing the view

User Microsoft Front Page or Macromedia Dreamweaver to design this interface:

Name:
weightTextBox

Body Mass Index

Weight:		(Kg)
Height:		(m)
	Calculate BMI	

Name:
heightTextBox

Name:
calculateBMIButton

- Page name: bmi.html
- Page title: Body Mass Index
- Table:
  - Row 1:
    - Label: weight
    - Textbox named: *weightTextBox*
  - *Row 2:*
    - Label: height
    - Textbox named: *heightTextBox*
  - Row 3: button named *calculateBMIButton*
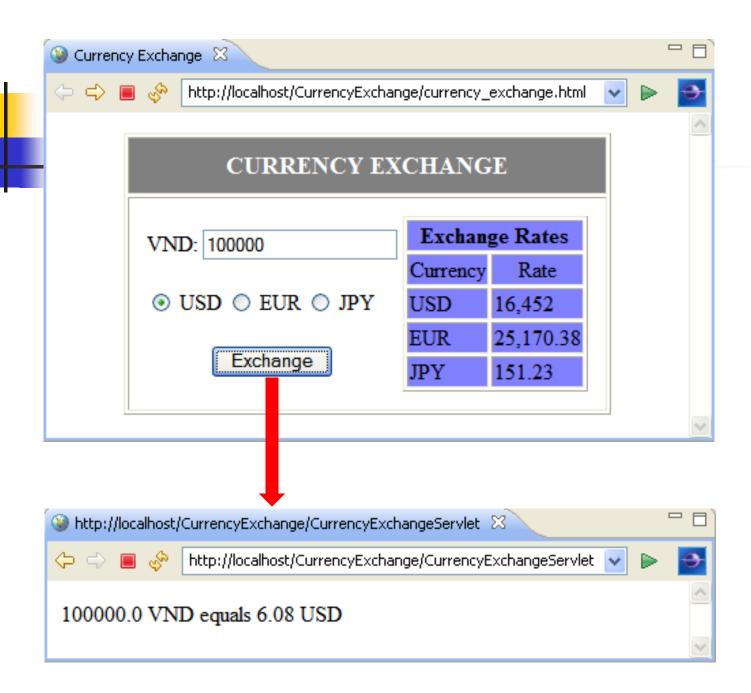
Additional Feature:

- Upgrade the above problem to display Weight status

- The following table are the definitions of BMI categories for adults used by the WHO:

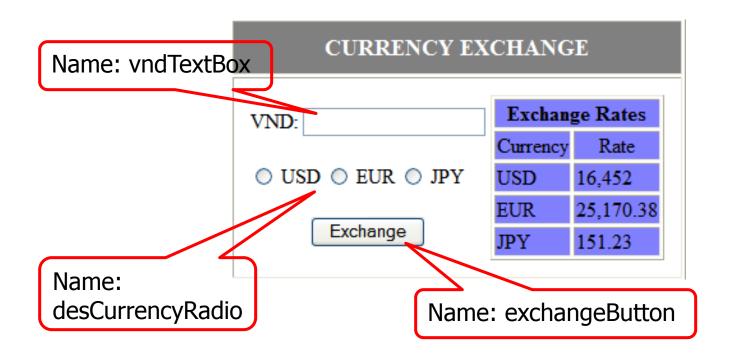| BMI	Weight Status
Below 18.5	Underweight
18.5 - 24.9	Normal
25.0 - 29.9	Overweight
30.0 and Above	Obese

B. Currency Exchange Problem

- Develop a web program allows users to input VND and choose either USD or EUR as well as JPY to exchange. Following table is the exchange rates from VND:

Currency	Exchange Rates
USD	16,452
EUR	25,170.38
JPY	151.23

1. Designing the view

- User Microsoft Front Page or Macromedia Dreamweaver to design this interface:

Name: vndTextBox

CURRENCY EXCHANGE

VND: _____

○ USD ○ EUR ○ JPY

Exchange

Exchange Rates	
Currency	Rate
USD	16,452
EUR	25,170.38
JPY	151.23

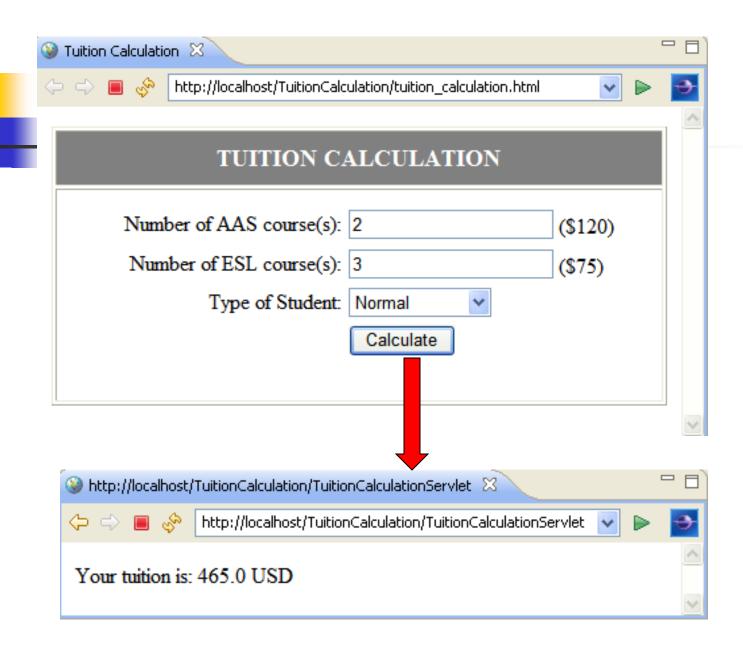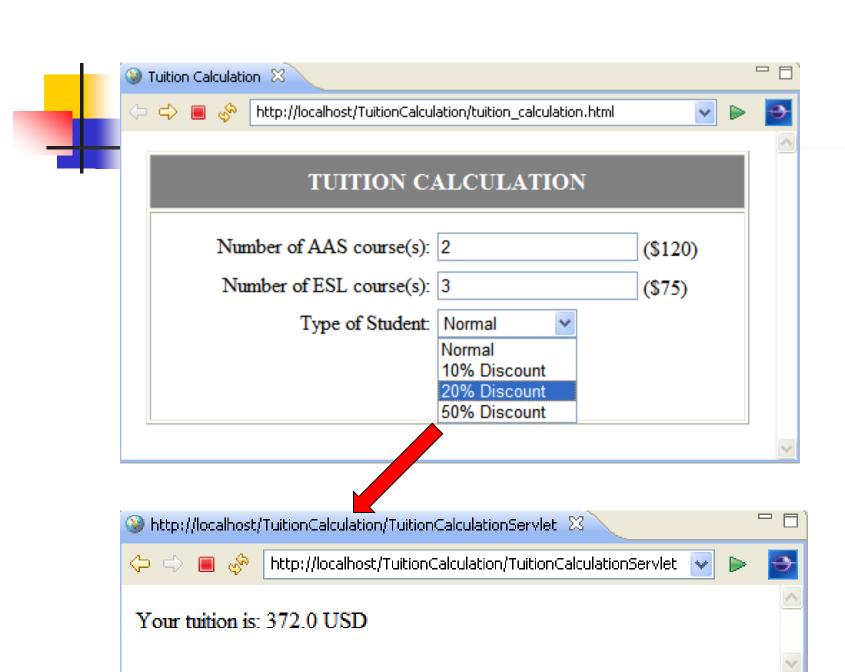Name: desCurrencyRadio

Name: exchangeButton

- Page name: currency_exchange.html
- Page title: Currency Exchange
- Table:
  - Row 1:
    - Label: VND
    - Textbox named *vndTextBox*
  - Row 2: three radio buttons named desCurrencyRadio, values: USD, EUR, JPY
  - Row 3: button named *exchangeButton*

C. Tuition Fee Calculation Problem

- Given the cost of AAS course is $120, ESL course is $75. Developing a web program calculate the tuition of a student when knows number of AAS, ESL courses and type of student.

- Type of student can be Normal (0% discount), 10$ discount, 20% discount or 50% discount.

1. Developing the view

- Page name: tuition_calculation.html
- Page title: Tuition Calculation
- Table
  - Row 1:
    - Label: Number of AAS course(s)
    - Textbox named: *aasTextBox*
    - Label: ($120)
  - Row 2:
    - Label: Number of AAS course(s)
    - Textbox named: *aasTextBox*
    - Label: ($120)

- Row 2:
  - Label: Number of ESL course(s)
  - Textbox named: *eslTextBox*
  - Label: ($75)
- Row 3:
  - Label: Type of Student
  - Select box
    - named *discountRateSelectBox*
    - Value:
      - 0: Normal
      - 10: 10% Discount
      - 20: 20% Discount
      - 50: 50% Discount
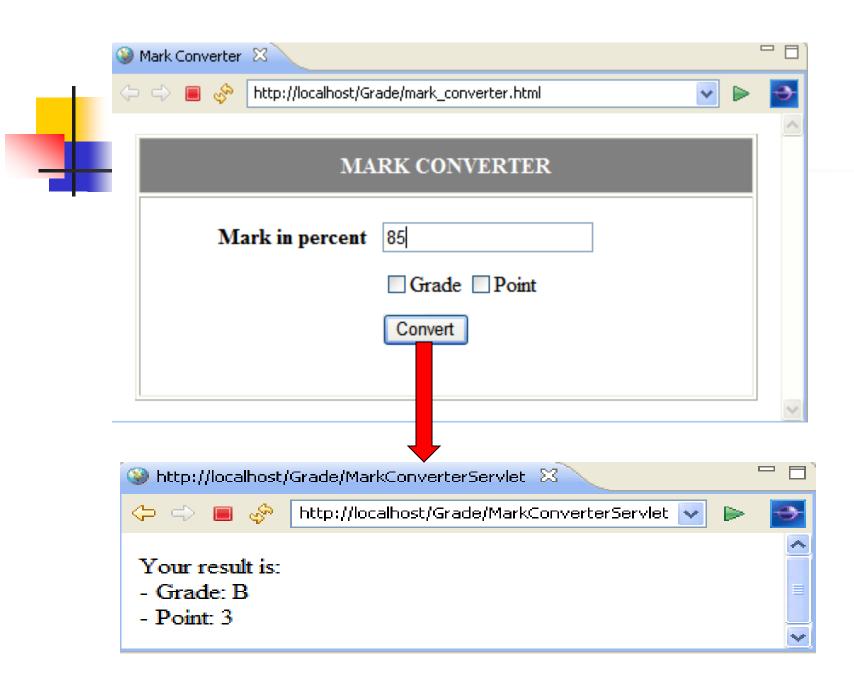- Row 4: button named *calculateButton*

D. Mark Converter Problem

- Develop a web program to convert Mark to Grade and Point, with:
  - Mark: from 0 to 100
  - Grade:
    - 90 -100 mark : A
    - 80 – 89 mark: B
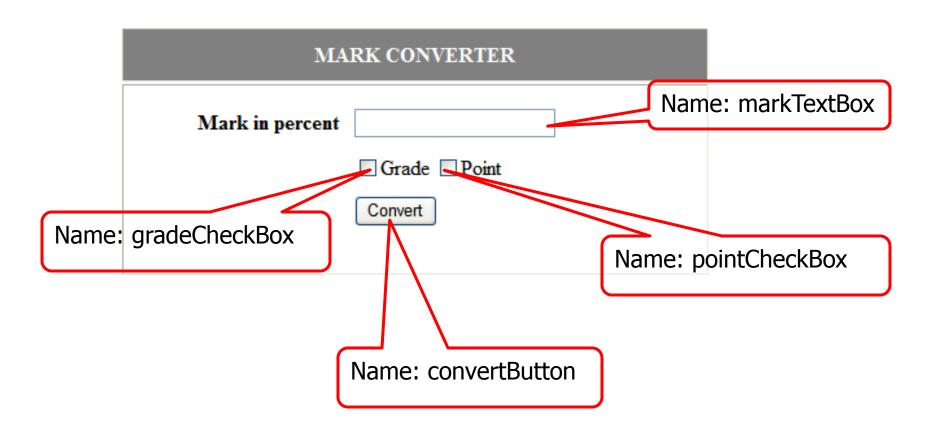   - 70 – 79 mark: C
    - 60 – 69 mark: D
    - 0 – 59 mark: F

- Point:
  - 90 -100 mark : 4
  - 80 – 89 mark: 3
  - 70 – 79 mark: 2
  - 60 – 69 mark: 1
  - 0 – 59 mark: 0

1. Developing the view

MARK CONVERTER

Mark in percent [   ]

Name: markTextBox

☐ Grade ☐ Point

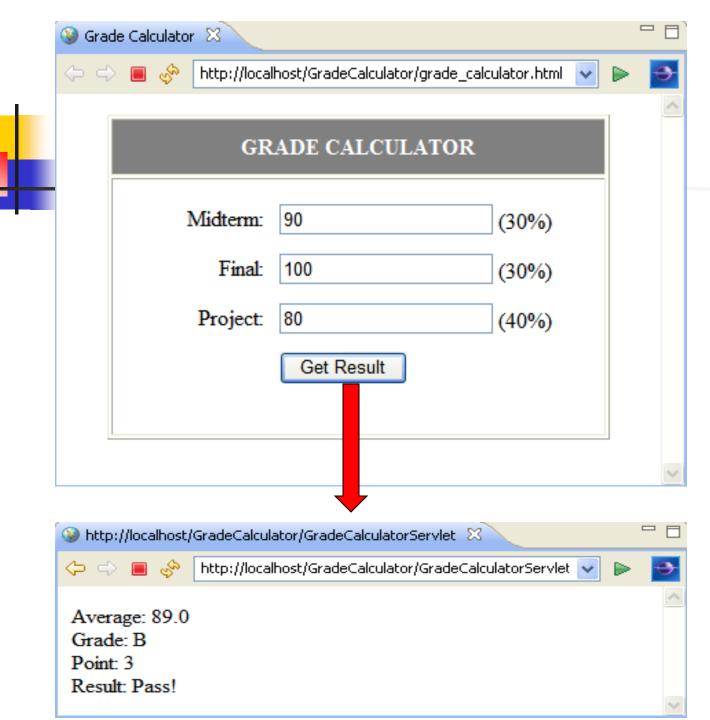[Convert]

Name: gradeCheckBox

Name: pointCheckBox

Name: convertButton

- Page name: mark_converter.html
- Page Title: Mark Converter
- Table:
  - Row 1
    - Label: Mark in percent
    - Textbox named *markTextBox*
  - Row 2:
    - Checkbox named: *gradeCheckBox*, value: Grade
    - Checkbox named: *pointCheckBox*, value: Point
  - Row 3: button named *convertButton*

Exercise (extends from the Exercise (D))

- Develop a program receive midterm (30%), final (30%) and project (40%) marks then calculate and displays the results. Which result can be:

  - Average mark
  - Grade: A, B, C, D, F
  - Point: 4, 3, 2, 1, 0
  - Result:
    - Average >= 60: pass
    - Average < 60 : fail

http://localhost/GradeCalculator/grade_calculator.html

GRADE CALCULATOR

Midterm: `90` (30%)

Final: `100` (30%)

Project: `80` (40%)

[Get Result]

http://localhost/GradeCalculator/GradeCalculatorServlet

Average: 89.0
Grade: B
Point: 3
Result: Pass!

Create FormLabExerciseMenu.jsp

- Create a jsp file (FormLabExerciseMenu.jsp)

- Add hyperlinks that will allows user to access the input forms for the above lab exercises (5 input forms)

- Make sure all the hyperlinks are properly works, and test the forms functionality.

References

1. Core Servlets And Java Server Pages, Volume 1, 2nd Edition, Chapter 4