school of computing, informatics, & decision systems engineering

ASU Ira A. Fulton Schools of Engineering Arizona State University

CSE 598: Software Analysis and Design

BMI Calculator Project Part 1: BMI Calculation SOC Application

Purpose:

This project, with opportunities for both creativity and practical application, is designed to provide students with a suitable environment for applying practical concepts covered in the unit. Students will draw inspiration from real-world scenarios and identify a service-oriented application of their choosing. Using Visual Studio, an industry-standard IDE, they will develop SOAP and REST web services. By developing these web services, students get hands-on practice with web-service development, service invocation, and application building in Part 2.

Note: Make sure to carefully watch Design and Implementation of REST and SOAP videos and study the example discussed in the videos in detail.

Objectives:

Students will be able to:

- Develop C# WCF REST web services in Visual Studio
- Develop C# WCF SOAP web services in Visual Studio
- Develop ASP .Net website application that uses REST and SOAP web service

Technology Requirements:

- Visual Studio 2019

Project Overview:

Develop REST and SOAP web services.

Project Description:

Develop REST and SOAP web services.

Directions:

Web Service and SOC Application Development

For this phase, use C# and Visual Studio 2019. Develop both web services and the ASP .Net client application in the **same** Visual Studio solution.

1. Develop a WCF SOAP Web service that takes the height in inches and weight in pounds. The service contains two operations:

   double myBMI(int height, int weight); // calculates the BMI. Use the following equation to calculate the BMI

   bmi = [weight (lb) / height (in) / height (in)] x 703

   bmi myHealth(int height, int weight); //this API returns the bmi structure, the **bmi** structure consists of following data members

   i-) bmi: double value that holds the BMI of the person

   ii-) risk: depending on the BMI value, return one of the following messages
   - You are underweight if BMI is < 18 - Blue Color
   - You are normal if BMI is ≥ 18 and < 25 - Green Color
   - You are pre-obese if BMI is between 25 and 30 – Purple Color
   - You are obese if BMI is greater than 30 - Red Color

   iii-) more: array of strings that has the following three external links

   ```
   "https://www.cdc.gov/healthyweight/assessing/bmi/index.html",
   "https://www.nhlbi.nih.gov/health/educational/lose_wt/index.htm",
   "https://www.ucsfhealth.org/education/body_mass_index_tool/"
   ```

2. Develop a WCF RESTful Web service that takes the height in inches and weight in pounds. The service contains two operations:

   double myBMI(int height, int weight); // calculates the BMI. Use the following equation to calculate the BMI

   bmi = [weight (lb) / height (in) / height (in)] x 703

   bmi myHealth(int height, int weight); //this API returns the bmi structure, the **bmi** structure consists of following data members

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```

Submission Directions for Project Deliverables

1. Use Visual Studio to complete all of the project requirements and submit as a **single** solution in a compressed (zip) file. Name your zip file “FirstName_LastName_Unit5_Project.zip”.

2. Submit the zip files of your SOAP and REST Web Services