Report of CS580 Assignment 3

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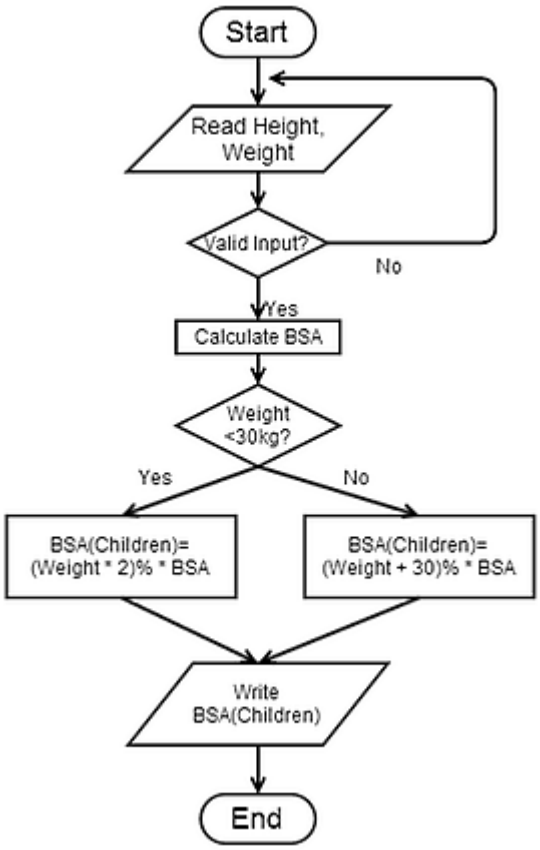
Multiple algorithms for calculating drug dosage for children have been discussed in (Lack and Stuart-Taylor, 17). Note: Average adult BSA is around 1.73 m^2. Your work on this assignment will be the basis for Assignment 5.

1) Draw a flow chart to facilitate a software developer to implement a program using BSA-based children drug dosage calculation method (including the calculation of BSA).

Answer:



BSA (cm^2) = 71.84 x Height(cm)$^{0.725}$ x Weight(kg)$^{0.425}$ By DuBois and DuBois's[1] 's equation.

2) Implement a simple universal BSA calculator. The focus is not on programing skills. Any form of implement is fine, for example Excel, or a command program.

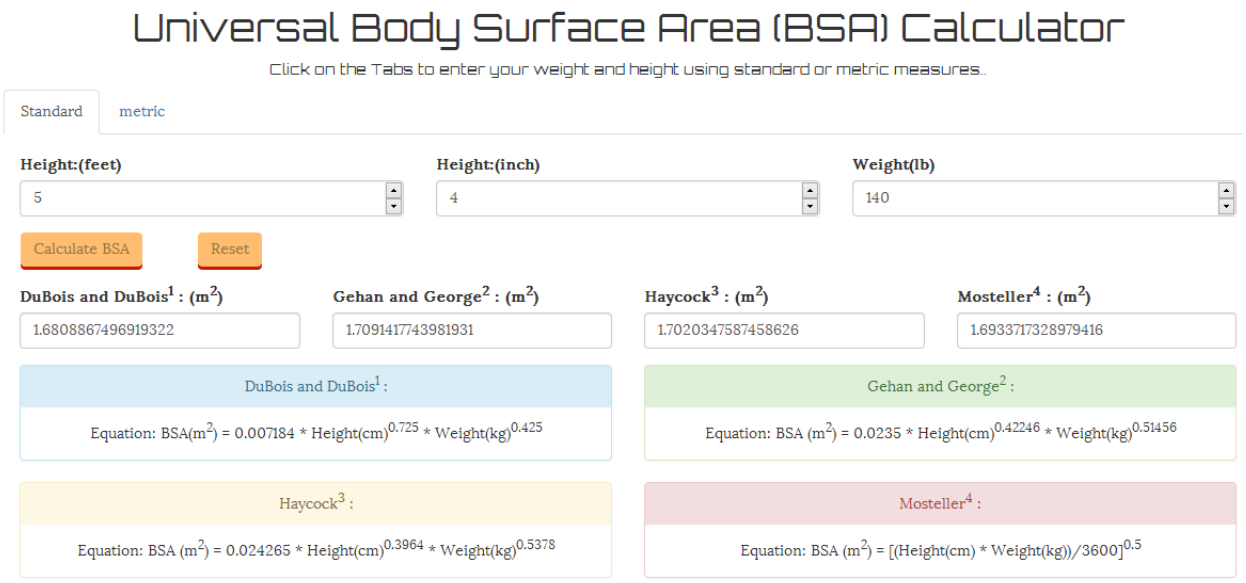
Answer:

The attached txt file"BSA.txt" is my solution. The programming language is JavaScript. And I used Twitter bootstrap framework(bootstrap.css and bootstrap.js) to make the user interface friendly and colorful.

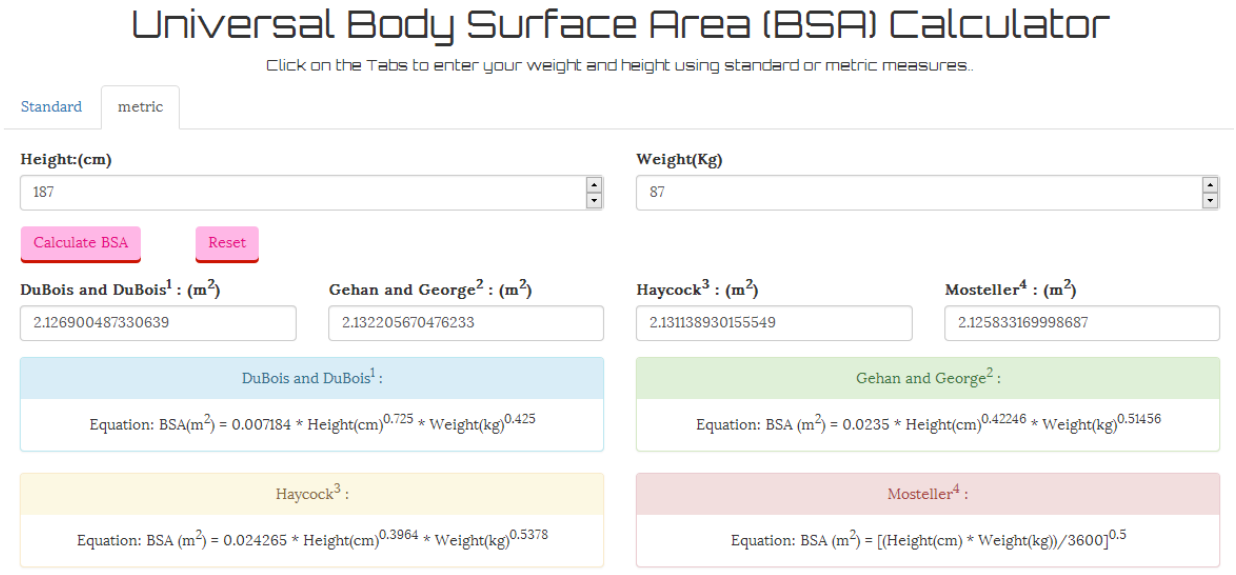
How to run: Please rename this file "BSA.html" and then open it by a web browser such as Chrome or IE Explorer or Firefox.

The screen-shot of this software:

(1) The user who is 5’4” and 140 lbs. His/her BMI is shown as follows.



(2)The user who is 187 cm and 87 kgs. His/her BMI is shown as follows.



References:

1) DuBois D, DuBois DF. A formula to estimate the approximate surface area if height and weight be known. Arch Int Med 1916;17:863-71.

2) Gehan EA, George SL. Estimation of human body surface area from height and weight. Cancer Chemother Rep 1970;54:225-35.

3) Haycock GB, Schwartz GJ, Wisotsky DH. Geometric method for measuring body surface area: A height-weight formula validated in infants, children and adults. J Pediatr 1978;93:62-6.

4) Mosteller RD. Simplified calculation of body-surface area. N Engl J Med 1987;317:1098.

5) Twitter Bootstrap framework. http://getbootstrap.com/