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Practice: Using PROC REG to Assess Collinearity

Run a regression of **PctBodyFat2** on all the other numeric variables in the data set **stat1.bodyfat2**.

1. Write a PROC REG step to determine whether a collinearity problem exists in your model. Submit the code and view the results.

```
/*st105s03.sas*/  /*Part A*/
ods graphics off;
proc reg data=STAT1.BodyFat2;
   FULLMODL: model PctBodyFat2 =
                  Age Weight Height
                  Neck Chest Abdomen Hip Thigh
                  Knee Ankle Biceps Forearm Wrist
                  / vif;
   title 'Collinearity -- Full Model';
run;
quit;
ods graphics on;
```

   Here are the results.

   There seems to be high collinearity with **Weight**, **Hip**, and **Abdomen**. **Chest** and **Thigh** are below the cut off but are larger than the others that do not exceed 5.

2. If there is a collinearity problem, what would you like to do about it? Will you remove any variables? Why or why not?

   The answer is not so easy. **Weight** is collinear with some of the other variables, but as you saw before in your model-building process, **Weight** is a relatively significant predictor in the "best" models. A subject-matter expert should determine the answer. If you want to remove **Weight**, simply run that model again without that variable.

```
/*st105s03.sas*/  /*Part B*/
ods graphics off;
proc reg data=STAT1.BodyFat2;
   NOWT: model PctBodyFat2 =
               Age Height
               Neck Chest Abdomen Hip Thigh
               Knee Ankle Biceps Forearm Wrist
               / vif;
   title 'Collinearity -- No Weight';
run;
quit;

ods graphics on;
```

   Here are the results.

Hide Solution