Laboratory 4
Intercept, Variable Centered, & Interactions

Description of “life-satisfaction751.txt”

We have life satisfaction data for 751 young adults with three demographic variables: age, sex and income. See Table 1.

Table 1. Life Satisfaction Data for 751 Young Adults

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>N</th>
<th>Mean</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFESAT -- Life Satisfaction</td>
<td>751</td>
<td>74</td>
<td>10 ~ 100</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>751</td>
<td>22</td>
<td>17 ~ 28</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>751</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female=0</td>
<td></td>
<td>50.2</td>
<td>377</td>
<td></td>
</tr>
<tr>
<td>Male=1</td>
<td></td>
<td>49.8</td>
<td>374</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>751</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low=0</td>
<td></td>
<td>57.0</td>
<td>428</td>
<td></td>
</tr>
<tr>
<td>High=1</td>
<td></td>
<td>43.0</td>
<td>323</td>
<td></td>
</tr>
</tbody>
</table>

Please use the following SAS program to fit different multiple regression models.

```
title1 '***************************************************************************************************';
title2 'Intercept, variable centered, and interaction by Henian Chen';
title3 '***************************************************************************************************';
proc import datafile='a:life-satisfaction751.txt'
    out=lifesat dbms=tab replace;
    getnames=yes;
run;
data lifesat1;
    set lifesat;
    agec=age-22;
    age17=age-17;
    age28=age-28;
proc reg data=lifesat1;
    model lifesat= ; /* model 1 */
    model lifesat=sex; /* model 2 */
    model lifesat=income; /* model 3 */
    model lifesat=age; /* model 4 */
    model lifesat=age17; /* model 5 */
```
model lifesat=age28; /* model 6 */
model lifesat=agec; /* model 7 */
model lifesat=sex income /* model 8 */
model lifesat=sex income sex_inco; /* model 9 with interaction */
run;

* in model 9: sex_incom = sex * income

Please report the intercept and regression coefficient (or partial regression coefficients) for each model and interpret them.