Consider the scenario in the following example that elucidates the AHP decision making process. After going through the steps given in this example, please mark your preferences for the research related questions in Section II.

Section I: An example

Scenario: There are three products A and B. A family needs to buy only one of them. Let there be two members in the family, Bob and Mary. Both of them have different sets of preferences for the products. Let there be three criteria (X, Y and Z) on the basis of which the family rates the products.

Goal: To prioritize three alternatives A, B and C on the basis of three criteria X, Y and Z.

Rating Process: Use Saaty’s Fundamental Scale (Table A-I) for rating the criteria and alternatives.

<table>
<thead>
<tr>
<th>Table A-I</th>
<th>Saaty’s Fundamental Scale for comparing and ranking two items i and j (Saaty, 1994)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>1</td>
<td>i and j are of equal preference</td>
</tr>
<tr>
<td>3</td>
<td>i is weakly more preferred to j</td>
</tr>
<tr>
<td>5</td>
<td>i is strongly more preferred to j</td>
</tr>
<tr>
<td>7</td>
<td>i is very strongly more preferred to j</td>
</tr>
<tr>
<td>9</td>
<td>i is absolutely more preferred to j</td>
</tr>
<tr>
<td>2,4,6,8</td>
<td>May be used as intermediate values</td>
</tr>
</tbody>
</table>

Here i refers to the row element in comparison to j, the column element.

Reciprocal value in the cell (i, j) would depict preference of j over i.
Step I: Rating the criteria

Assuming Bob prefers X twice to Z and Y thrice to Z, he rates the pair (X, Z) as 2 and (Y, Z) as 3. If his preference for X and Y is equal, then his rating for the pair (X, Y) is 1.

Similarly if Mary feels Y is thrice preferable to X, prefers Z four times to Y and feels that X and Z are of equal importance then she rates the pair (X, Y) as $1/3^#$, (Y, Z) as $1/4^#$ and (X, Z) as 1.

Step II: Rating the alternatives

Consider the criterion X. Assuming Bob likes A twice more than B in consideration to criterion X, his rating for the pair (A, B) is 2. Similarly, if Mary likes B thrice more than A in context to X, she rates the pair (A, B) as $1/3^#$. 

Now consider the criterion Y. Assuming Bob likes A and B equally in consideration to criterion Y, his rating for the pair (A, B) is 1. If Mary likes A two times more than B in context to Y, she rates the pair (A, B) as 2.

#Note: If the rating for any pair (i, j) is marked as say 2, it is assumed that the rating for (j, i) is $1/2$ and vice-versa. Refer Random Consistency Index (RI) (Table A-II) for verifying the consistency of the comparison matrix.

Table A-II: Saaty’s Random Consistency Index (RI) (Saaty, 1994)

<table>
<thead>
<tr>
<th>Matrix Order</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI</td>
<td>0.00</td>
<td>0.00</td>
<td>0.58</td>
<td>0.9</td>
<td>1.12</td>
<td>1.24</td>
<td>1.32</td>
<td>1.41</td>
<td>1.45</td>
<td>1.49</td>
</tr>
</tbody>
</table>
Section II: Research related questions

Rate each pair of criteria mentioned in Section A below, each pair of subcriteria mentioned in Section B and each pair of alternatives mentioned in Section C on a scale of 1-9 using the Saaty’s Fundamental Scale (Table A-I) and write it in the box against the respective pair.

A. Mark your ratings for the pairs of criteria in context to choosing a programming language for an introductory computing course

1) Programming Aspects w.r.t. Technical Aspects
2) Programming Aspects w.r.t. Usability Aspects
3) Programming Aspects w.r.t. Commercial Aspects
4) Technical Aspects w.r.t. Usability Aspects
5) Technical Aspects w.r.t. Commercial Aspects
6) Usability Aspects w.r.t. Commercial Aspects

B. Mark your ratings for the pair of subcriteria in context to:

a) Programming
1) Object Oriented Programming w.r.t. Procedural Programming.

b) Technology
1) Syntax w.r.t. Debugging
2) Syntax w.r.t. Portability
3) Debugging w.r.t. Portability

c) Usability
1) GUI w.r.t. familiarity
2) familiarity w.r.t. expressivity

d) Commercial Aspects
1) Industrial Demand w.r.t. Compiler Cost
2) Industrial Demand w.r.t. Compiler Availability
3) Industrial Demand w.r.t. Cost of Textbooks
4) Compiler Cost w.r.t. Compiler Availability
5) Compiler Cost w.r.t. Cost of Textbooks
6) Compiler Availability w.r.t. Cost of Textbooks
C. Mark your ratings for the pair of alternatives in context to:

a) Object oriented programming

1) C++ w.r.t. Java
2) C++ w.r.t. C
3) C++ w.r.t. VB
4) Java w.r.t. C
5) Java w.r.t. VB
6) C w.r.t. VB

b) Procedural programming

1) C++ w.r.t. Java
2) C++ w.r.t. C
3) C++ w.r.t. VB
4) Java w.r.t. C
5) Java w.r.t. VB
6) C w.r.t. VB

c) Ease of understanding syntax

1) C++ w.r.t. Java
2) C++ w.r.t. C
3) C++ w.r.t. VB
4) Java w.r.t. C
5) Java w.r.t. VB
6) C w.r.t. VB

d) Ease of debugging

1) C++ w.r.t. Java
2) C++ w.r.t. C
3) C++ w.r.t. VB
4) Java w.r.t. C
5) Java w.r.t. VB
6) C w.r.t. VB

e) Portability

1) C++ w.r.t. Java
2) C++ w.r.t. C
3) C++ w.r.t. VB
4) Java w.r.t. C
5) Java w.r.t. VB
6) C w.r.t. VB

f) GUI

1) C++ w.r.t. Java
2) C++ w.r.t. C
3) C++ w.r.t. VB
4) Java w.r.t. C
5) Java w.r.t. VB
6) C w.r.t. VB
### Appendix A-I

<table>
<thead>
<tr>
<th>g) Familiarity to the concepts</th>
<th>j) Compiler cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) C++ w.r.t. Java</td>
<td>1) C++ w.r.t. Java</td>
</tr>
<tr>
<td>2) C++ w.r.t. C</td>
<td>2) C++ w.r.t. C</td>
</tr>
<tr>
<td>3) C++ w.r.t. VB</td>
<td>3) C++ w.r.t. VB</td>
</tr>
<tr>
<td>4) Java w.r.t. C</td>
<td>4) Java w.r.t. C</td>
</tr>
<tr>
<td>5) Java w.r.t. VB</td>
<td>5) Java w.r.t. VB</td>
</tr>
<tr>
<td>6) C w.r.t. VB</td>
<td>6) C w.r.t. VB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>h) Ease of expression</th>
<th>k) Compiler availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) C++ w.r.t. Java</td>
<td>1) C++ w.r.t. Java</td>
</tr>
<tr>
<td>2) C++ w.r.t. C</td>
<td>2) C++ w.r.t. C</td>
</tr>
<tr>
<td>3) C++ w.r.t. VB</td>
<td>3) C++ w.r.t. VB</td>
</tr>
<tr>
<td>4) Java w.r.t. C</td>
<td>4) Java w.r.t. C</td>
</tr>
<tr>
<td>5) Java w.r.t. VB</td>
<td>5) Java w.r.t. VB</td>
</tr>
<tr>
<td>6) C w.r.t. VB</td>
<td>6) C w.r.t. VB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>i) Industrial demand</th>
<th>l) Cost of Textbooks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) C++ w.r.t. Java</td>
<td>1) C++ w.r.t. Java</td>
</tr>
<tr>
<td>2) C++ w.r.t. C</td>
<td>2) C++ w.r.t. C</td>
</tr>
<tr>
<td>3) C++ w.r.t. VB</td>
<td>3) C++ w.r.t. VB</td>
</tr>
<tr>
<td>4) Java w.r.t. C</td>
<td>4) Java w.r.t. C</td>
</tr>
<tr>
<td>5) Java w.r.t. VB</td>
<td>5) Java w.r.t. VB</td>
</tr>
<tr>
<td>6) C w.r.t. VB</td>
<td>6) C w.r.t. VB</td>
</tr>
</tbody>
</table>