Assignment 2

Group 0

1. **Understanding QTLs**
   - Explain the concept of QTLs (Quantitative Trait Loci) and their role in biological systems. Discuss how they influence the expression of genetic traits.

2. **Graph Analysis**
   - Provide the probability of gene expression increasing with age, as shown in the graph below. In a study, the gene expression increases by 5% per year. Interpret the graph and discuss its implications.

3. **Data Table**
   - The table below illustrates the relationship between age and gene expression. Analyze the data and discuss any observed trends.

4. **Gene Expression Study**
   - A research team is studying gene expression changes due to environmental factors. Describe the study design and outline the methods used.

5. **Graph Interpretation**
   - Interpret the graph showing gene expression levels in different conditions. Discuss the significance of the observed trends.

6. **Statistical Analysis**
   - Perform a statistical analysis on the gene expression data provided. Discuss the methods used and the results obtained.

7. **Conclusion**
   - Summarize the findings of your study. Discuss the implications of your results and suggest areas for further research.

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**Data Table**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Gene Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>3</td>
<td>1.6</td>
</tr>
<tr>
<td>4</td>
<td>1.8</td>
</tr>
<tr>
<td>5</td>
<td>2.0</td>
</tr>
</tbody>
</table>

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**Graph**

- **X-axis:** Age (years)
- **Y-axis:** Gene Expression
- **Legend:** Conditions A, B, C, D