Solution Quiz # 1

Q 1)

Data Sturcture: Linked List

Reasons:

1. Additions, deletions, insertion done much more easily as compared to array.

2. Size of a list is variable.

Q 2)

<table>
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<th>Output</th>
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<tbody>
<tr>
<td>Requirements Engineering</td>
<td>SRS (Software Requirements Specifications)</td>
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Q 3)

1. **Basis**
   \[
   n = 1 \\
   2^1 = 2^{1+1} - 2 = 2
   \]

2. **Induction Hypothesis**
   Assume relation is true for \( n \)
   \[
   \sum_{i=1}^{n} 2^i = 2^{n+1} - 2 \quad (1)
   \]

3. **Prove**
   \[
   \sum_{i=1}^{n+1} 2^i = 2^{n+2} - 2
   \]
   \[
   \sum_{i=1}^{n+1} 2^i = \sum_{i=1}^{n} 2^i + 2^{n+1}
   \]
   By Induction Hypothesis (i.e. using (1))
   \[
   = 2^{n+1} - 2 + 2^{n+1} \\
   = 2 \left( 2^{n+1} \right) - 2 \\
   = 2^{n+2} - 2
   \]