**Program Design**

**Activity 1**

**Question 1:**

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| Explain what a **flowchart** is. |
| A diagram that shows the steps, sequences and decisions or workflow |

**Question 2:**

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| Explain what **pseudocode** is. |
| A way of programming description that does not require any strict programming language syntax and uses common English |

**Question 3:**

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| Describe the purpose of flowcharts and pseudocode in the program design process. |
| Flowcharts use diagrams to show the steps of a program making complex processes easier to understand  Pseudocode uses plain language to describe the logic before coding |

**Question 4:**

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| Explain the purpose of the algorithm shown in this flowchart. |
| A screenshot of a computer  Description automatically generated |
| The algorithm generates a sequence where the number starts at 1 and is doubled in each iteration. The sum accumulates the values of these numbers until it exceeds 29. Once this condition is met, the algorithm outputs the total sum.  This process can be seen as summing a series of powers of 2 (1, 2, 4, 8, ...) until the cumulative sum exceeds 29. |

**Question 5:**

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| Explain the purpose of the algorithm shown in this pseudocode. |
| emailAddress = INPUT (“Enter your email address:”)  WHILE not hasAtSign  OUTPUT(“Error invalid email address.”)  emailAddress = INPUT(“Enter your email address:”)  END WHILE  IF emailAddress is not lowercase THEN  Convert to lowercase  END IF  OUTPUT (“Your email address has been accepted.”). |
| The algorithm validates that an email address contains the @ symbol ensuring that it is correct.it also converts the email address entered to lower case if necessary and gives the user feedbacks |