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Pre-interview test answers

1a) The pseudo-code provided creates an array '**x**' with 100 elements, initializes an integer **'p**' to 1, and then enters a while loop that continues until '**p**' is less than 100. Inside the loop, it increments '**p'** by 3. If the integer division of '**p**' by 3 is equal to the float division of '**p**' by 3 (which means '**p**' is divisible by 3), it prints the value at index '**p**' in array '**x**'.

However, there is an error in the loop. Instead of updating the value of '**p**' inside the loop (**p** + 3 should be **p** = **p** + 3), it's just adding 3 to '**p**' without updating it. Therefore, the loop becomes infinite and the program won't proceed beyond it.

1b) To fix the code in 1a, I would update the line '**p**' + 3 to '**p**' = '**p**' + 3. This ensures that the variable '**p'** is updated properly within the loop, preventing an infinite loop.

```
Create array x[100]
 Create integer p = 1
While p < 100
if p % 3 == 0 then print x[p]
  p = p + 3
 End while
```

2)
```
SELECT b.Author_Name, b.Book_Name, b.Number_Of_Pages
FROM Books b
INNER JOIN (
  SELECT Author_Name, MAX(Number_Of_Pages) AS MaxPages
  FROM Books
  GROUP BY Author_Name
) AS MaxPagesByAuthor ON b.Author_Name = MaxPagesByAuthor.Author_Name AND
b.Number_Of_Pages = MaxPagesByAuthor.MaxPages;
```

This query first calculates the maximum number of pages (MaxPages) for each author using a subquery. Then, it joins this subquery with the Books table on the Author_Name and Number_Of_Pages fields to retrieve the book information corresponding to the longest book written by each author.