4.Arrays

1. Write a function to add integer values of an array
2. Write a function to calculate the average value of an array of integers
3. Write a program to find the index of an array element
4. Write a function to test if array contains a specific value
5. Write a function to remove a specific element from an array
6. Write a function to copy an array to another array
7. Write a function to insert an element at a specific position in the array
8. Write a function to find the minimum and maximum value of an array
9. Write a function to reverse an array of integer values
10. Write a function to find the duplicate values of an array
11. Write a program to find the common values between two arrays
12. Write a method to remove duplicate elements from an array
13. Write a method to find the second largest number in an array
14. Write a method to find the second largest number in an array
15. Write a method to find number of even number and odd numbers in an array
16. Write a function to get the difference of largest and smallest value
17. Write a method to verify if the array contains two specified elements(12,23)
18. Write a program to remove the duplicate elements and return the new array

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```
# 1st program...
def add_array_values(array):
  sum = 0
  for i in array:
    sum += i
  return sum
array = [1, 2, 3, 4, 5]
sum = add_array_values(array)
print(sum)
```

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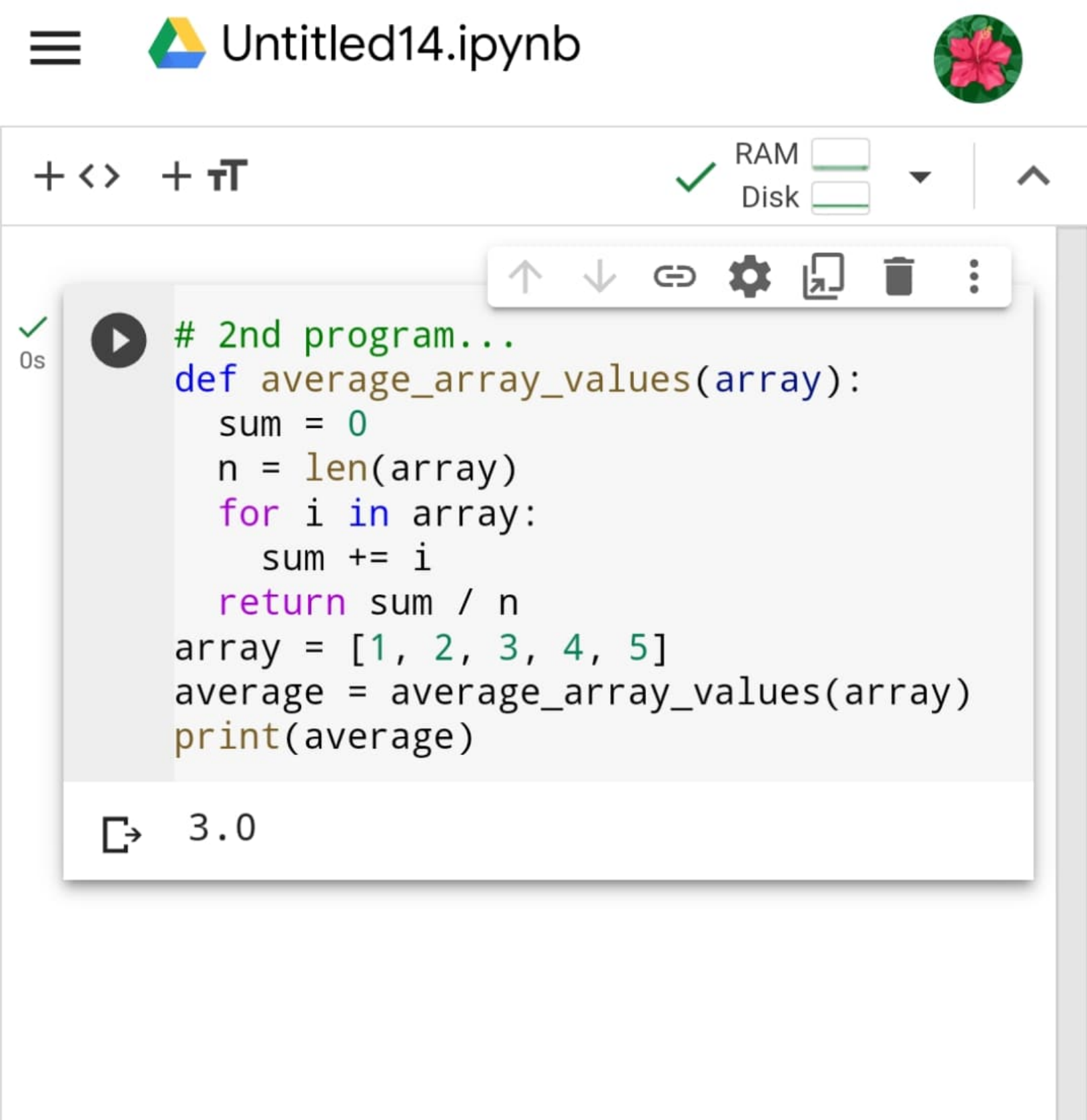
```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# 2nd program...
def average_array_values(array):
sum = 0
n = len(array)
for i in array:
sum += i
return sum / n
array = [1, 2, 3, 4, 5]
average = average_array_values(array)
print(average)
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```
# 3rd program...
def find_index(array, element):
  for i in range(len(array)):
    if array[i] == element:
      return i
  return -1
array = [1, 2, 3, 4, 5]
element = 3
index = find_index(array, element)
print(index)
```

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```
# 4th program...
def contains_value(array, value):

  for element in array:
    if element == value:
      return True
  return False


array = [1, 2, 3, 4, 5]
value = 3
print(contains_value(array, value))
```

```
True
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```
# 5th program...
def remove_element(array, element):

  i = 0
  while i < len(array):
    if array[i] == element:
      del array[i]
      break
    i += 1


array = [1, 2, 3, 4, 5]

remove_element(array, 3)

print(array)
```

```
[1, 2, 4, 5]
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# 6th program...
def copy_array(array):

  new_array = []
  for i in range(len(array)):
    new_array.append(array[i])
  return new_array


array = [1, 2, 3, 4, 5]

new_array = copy_array(array)

print(new_array)
```
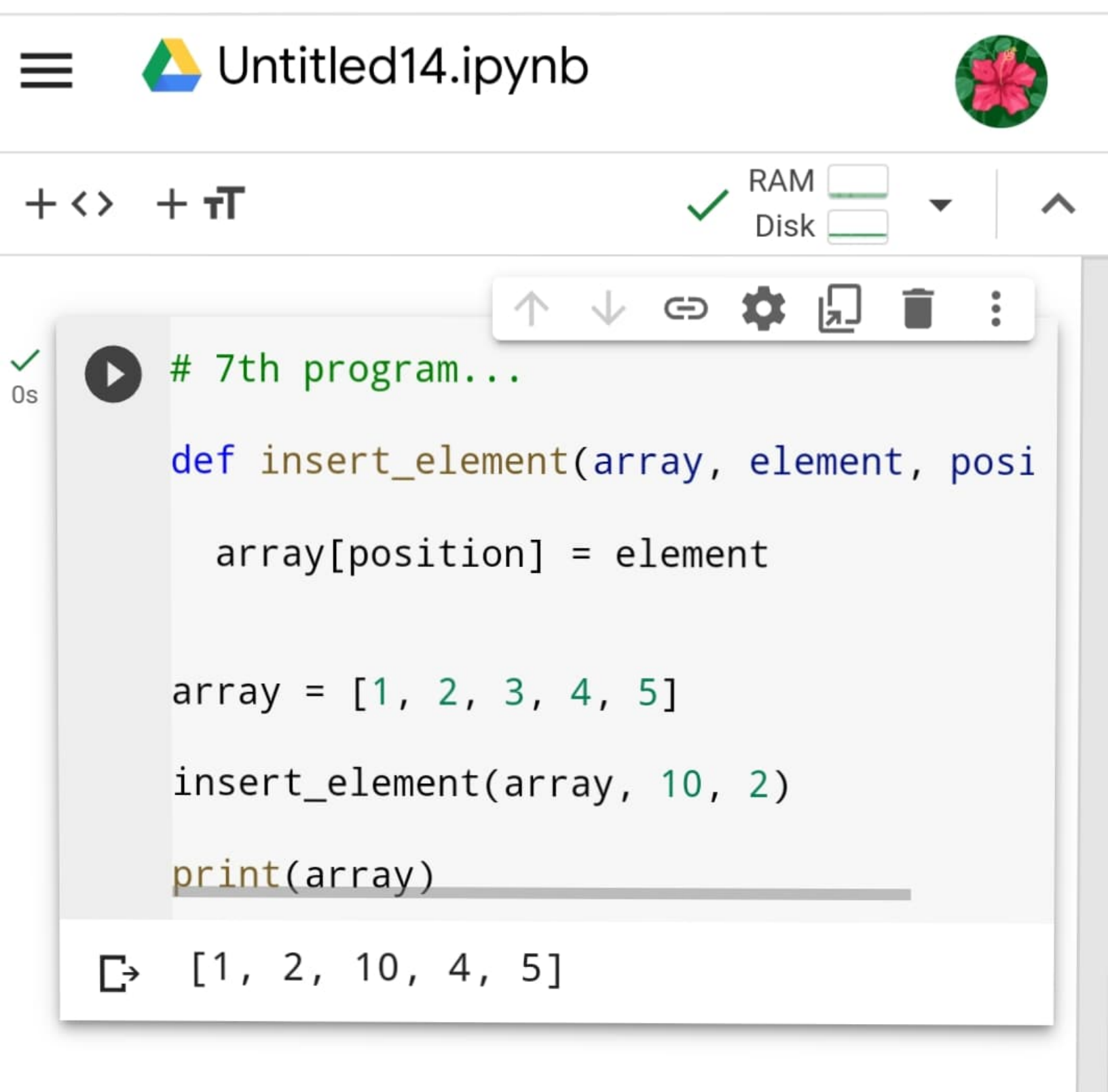

```
[1, 2, 3, 4, 5]
```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7th program...
def insert_element(array, element, posi
array[position] = element
array = [1, 2, 3, 4, 5]
insert_element(array, 10, 2)
print(array)
[1, 2, 10, 4, 5]

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# 8th program...
def find_min_max(array):

  min_value = array[0]
  max_value = array[0]
  for i in range(1, len(array)):
    if array[i] < min_value:
      min_value = array[i]
    elif array[i] > max_value:
      max_value = array[i]
  return min_value, max_value


array = [1, 2, 3, 4, 5]

min_value, max_value = find_min_max(array)

print("The minimum value is", min_value)
print("The maximum value is", max_value)
```

```
The minimum value is 1
The maximum value is 5
```

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```
# 9th program...

def reverse_array(array):
  n = len(array)
  for i in range(n // 2):
    temp = array[i]
    array[i] = array[n - i - 1]
    array[n - i - 1] = temp


array = [1, 2, 3, 4, 5]
reverse_array(array)
print(array)
```

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[5, 4, 3, 2, 1]
```

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# 10th program...
def find_duplicates(array):
  seen = set()
  duplicates = []
  for value in array:
    if value in seen:
      duplicates.append(value)
    else:
      seen.add(value)

  return duplicates


array = [1, 2, 3, 4, 1, 2]
duplicates = find_duplicates(array)
print(duplicates)
```

```
[1, 2]
```

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# 11th program...
def find_common_values(array1, array2):
  common_values = []
  for value in array1:
    if value in array2:
      common_values.append(value)

  return common_values


array1 = [1, 2, 3, 4, 5]
array2 = [2, 3, 5, 6, 7]
common_values = find_common_values(arra
print(common_values)
```

```
[2, 3, 5]
```

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```python
# 11th program...
def find_common_values(array1, array2):
  common_values = []
  for value in array1:
    if value in array2:
      common_values.append(value)

  return common_values


array1 = [1, 2, 3, 4, 5]
array2 = [2, 3, 5, 6, 7]
common_values = find_common_values(array1, array2)
print(common_values)
```

```
[2, 3, 5]
```

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```
# 12th program...
def remove_duplicates(array):

  new_array = []
  seen = set()
  for element in array:
    if element not in seen:
      new_array.append(element)
      seen.add(element)
  return new_array


array = [1, 2, 3, 1, 2, 4]
new_array = remove_duplicates(array)
print(new_array)
```

```
[1, 2, 3, 4]
```

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# 13th program...
def find_second_largest_number(array):
  0
  largest_number = None
  second_largest_number = None

  for number in array:
    if largest_number is None or number > largest_number:
      second_largest_number = largest_number
      largest_number = number
    elif second_largest_number is None or number > second_largest_number:
      second_largest_number = number

  return second_largest_number


array = [1, 2, 3, 4, 5]
second_largest_number = find_second_largest_number(array)
print(second_largest_number)
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# 15th program...
def find_number_of_even_and_odd_numbers(array):


  # Initialize the number of even and odd numbers to 0.
  even_count = 0
  odd_count = 0

  # Iterate through the array.
  for number in array:
    # Check if the number is even.
    if number % 2 == 0:
      # If the number is even, increment the even count.
      even_count += 1
    else:
      # Otherwise, increment the odd count.
      odd_count += 1

  return even_count, odd_count


if __name__ == "__main__":

  array = [1, 2, 3, 4, 5]


  even_count, odd_count = find_number_of_even_and_odd_numbers(array)

  # Print the number of even numbers and odd numbers in the array.
  print("The number of even numbers is:", even_count)
  print("The number of odd numbers is:", odd_count)
```

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The number of even numbers is: 2
The number of odd numbers is: 3
```

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```
# 16th program...
def get_difference(nums):

  largest = nums[0]
  smallest = nums[0]
  for num in nums:
    if num > largest:
      largest = num
    elif num < smallest:
      smallest = num
  return largest - smallest


nums = [10, 4, 2, 9, 7]
print(get_difference(nums))
```

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# 17th program...
def contains_two_elements(array, elements):


  for i in range(len(array)):
    if array[i] == elements[0]:
      for j in range(i + 1, len(array)):
        if array[j] == elements[1]:
          return True
  return False


array = [1, 2, 3, 12, 23, 45]
elements = [12, 23]

print(contains_two_elements(array, elements))
```

```
True
```

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```
# 18th program...
def remove_duplicates(array):


  new_array = []
  for i in array:
    if i not in new_array:
      new_array.append(i)
  return new_array


array = [1, 2, 3, 3, 2, 1]
new_array = remove_duplicates(array)
print(new_array)
```

```
[1, 2, 3]
```