NAME: BUTERABA LYNATTE JOANITTA

1.
```
void main() {
  List<int> a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89];
  for (int element in a) {
    if (element < 5) {
      print(element);
    }
  }
}
```
Output:
```
1
1
2
3
```

2.
```
void main() {
  List<int> a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89];
  List<int> b = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13];

  List<int> commonElements = findCommonElements(a, b);

  print(commonElements); // Output: [1, 2, 3, 5, 8, 13]
}

List<int> findCommonElements(List<int> list1, List<int> list2) {
  Set<int> set1 = list1.toSet();
  Set<int> set2 = list2.toSet();

  // Use the intersection of both sets to get the common elements without duplicates
  Set<int> commonSet = set1.intersection(set2);

  return commonSet.toList();
}
```
Output: `[1, 2, 3, 5, 8, 13]`

3.
```
void main() {
  String input = "radar"; //

  if (isPalindrome(input)) {
    print("$input is a palindrome.");
  } else {
    print("$input is not a palindrome.");
```

```
  }
}

bool isPalindrome(String str) {
  // Remove any non-alphanumeric characters and convert the string to lowercase
  String cleanedStr = str.replaceAll(RegExp(r'[^a-zA-Z0-9]'), '').toLowerCase();

  // Compare the cleaned string with its reversed version
  return cleanedStr == cleanedStr.split('').reversed.join('');
}
```
Output: `radar is a palindrome.`

```
4.void main() {
  List<int> a = [5, 10, 15, 20, 25];

  List<int> firstAndLastElements = getFirstAndLastElements(a);

  print(firstAndLastElements); // Output: [5, 25]
}

List<int> getFirstAndLastElements(List<int> list) {
  if (list.isEmpty) {
    throw ArgumentError("Input list cannot be empty.");
  }

  return [list.first, list.last];
}
```
Output: `[5, 25]`

```
5. import 'dart:io';

void main() {
  print("Enter a long string containing multiple words:");
  String input = stdin.readLineSync();

  String reversedString = reverseWords(input);

  print("Reversed string: $reversedString");
}

String reverseWords(String input) {
  List<String> words = input.split(' ');
  List<String> reversedWords = words.reversed.toList();
  return reversedWords.join(' ');
```

```
}
```
Output: Enter a long string containing multiple words:
I love watching football.
Reversed string: football. watching love I
PS C:\Users\LYNATTE\Desktop\django project> dart program.dart
Enter a long string containing multiple words:
I love programming
Reversed string: programming love I

6.
```
void main() {
  List<int> inputList = [1, 2, 2, 3, 4, 4, 5, 5, 5];
  List<int> uniqueList = removeDuplicates(inputList);

  print("Original list: $inputList");
  print("List without duplicates: $uniqueList"); // Output: [1, 2, 3, 4, 5]
}

List<int> removeDuplicates(List<int> list) {
  List<int> uniqueList = [];

  for (int element in list) {
    if (!uniqueList.contains(element)) {
      uniqueList.add(element);
    }
  }

  return uniqueList;
}
```
Output:
```
Original list: [1, 2, 2, 3, 4, 4, 5, 5, 5]
List without duplicates: [1, 2, 3, 4, 5]
```

7. a) PS C:\Users\LYNATTE\Desktop\django project> dart program.dart
Months of all the birthdays:
May
November
December

b) PS C:\Users\LYNATTE\Desktop\django project> dart program.dart
Birthdays count by month:

May: 8
November: 2
December: 7

c) PS C:\Users\LYNATTE\Desktop\django project> dart program.dart
Month with the most birthdays: May
Month with the least birthdays: November