Program:3a

```
import java.util.Scanner;
public class PatternFinder {
  public static void printStarTriangle(int n) {
    for (int i = 1; i \le n; i++) {
      for (int j = 1; j \le i; j++) {
         System.out.print("* ");
      }
       System.out.println();
    }
  }
public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter the number of rows for the pattern: ");
    int rows = sc.nextInt();
    System.out.println("Star Triangle Pattern:");
    printStarTriangle(rows);
    sc.close();
  }
}
Output:
Enter the number of rows for the pattern: 5
Star Triangle Pattern:
```

Program:3b

```
import java.util.Scanner;
public class PalindromeChecker {
  public static boolean isPalindrome(String input) {
    int left = 0;
    int right = input.length() - 1;
while (left < right) {
       if (input.charAt(left) != input.charAt(right)) {
         return false;
       }
       left++;
       right--;}
    return true;
  }
public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter a string or number: ");
    String input = sc.nextLine();
if (isPalindrome(input)) {
       System.out.println(input + " is a palindrome.");
    } else {
       System.out.println(input + " is NOT a palindrome.");
    }
    sc.close();
  }
}
Output:
Enter a string or number: nitin
nitin is a palindrome.
```

Program:3c

Password is valid.

```
import java.util.Scanner;
public class PasswordValidator {
  public static boolean isValidPassword(String password) {
    if (password.length() < 8) return false;
    boolean hasUpper = false, hasLower = false, hasDigit = false, hasSpecial = false;
      for (char ch : password.toCharArray()) {
      if (Character.isUpperCase(ch)) hasUpper = true;
      else if (Character.isLowerCase(ch)) hasLower = true;
      else if (Character.isDigit(ch)) hasDigit = true;
      else if ("@#!$%^&*()-_+=<>?/|\\{}[]~".indexOf(ch) != -1) hasSpecial = true;
    }
    return hasUpper && hasLower && hasDigit && hasSpecial;
  }
public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter a password to validate: ");
    String password = sc.nextLine();
     if (isValidPassword(password)) {
      System.out.println("Password is valid.");
    } else {
      System.out.println("Password is invalid. It must be at least 8 characters long and include
uppercase, lowercase, digit, and special character.");
    }
    sc.close();
  }}
Output:
Enter a password to validate: Password12!
```