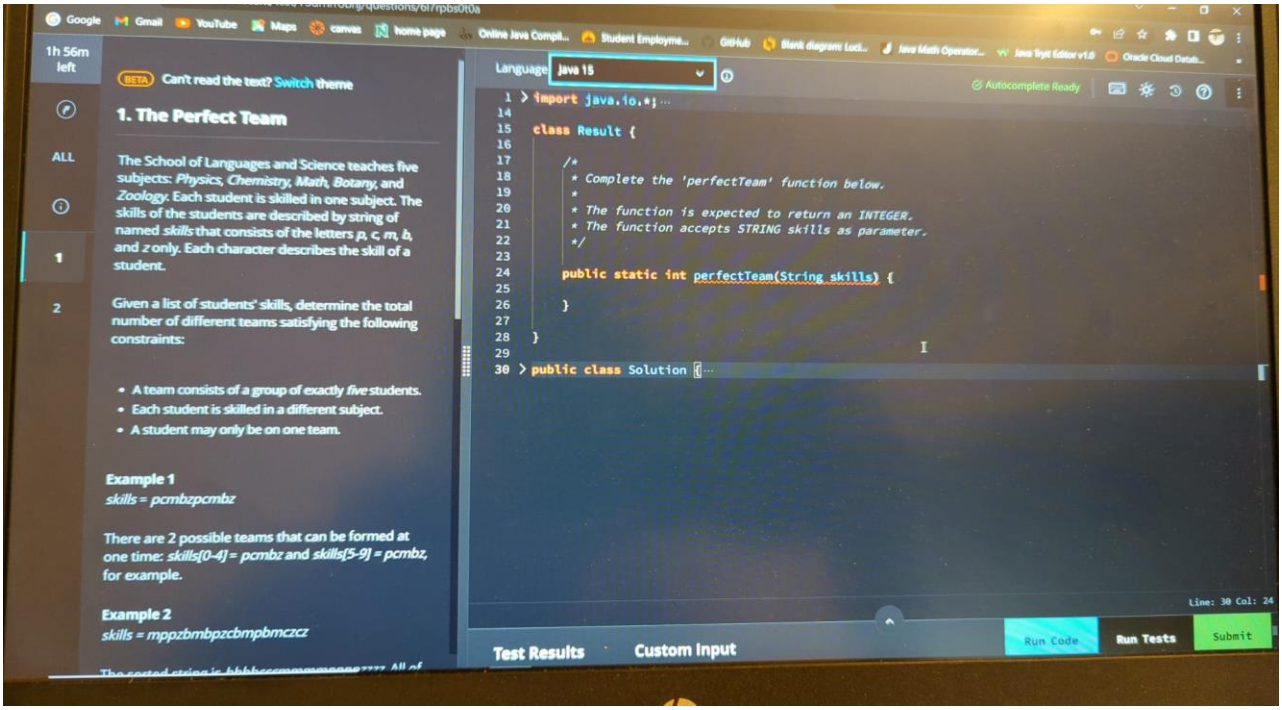
Goldman Sachs Assessment Questions

1. **Question:**

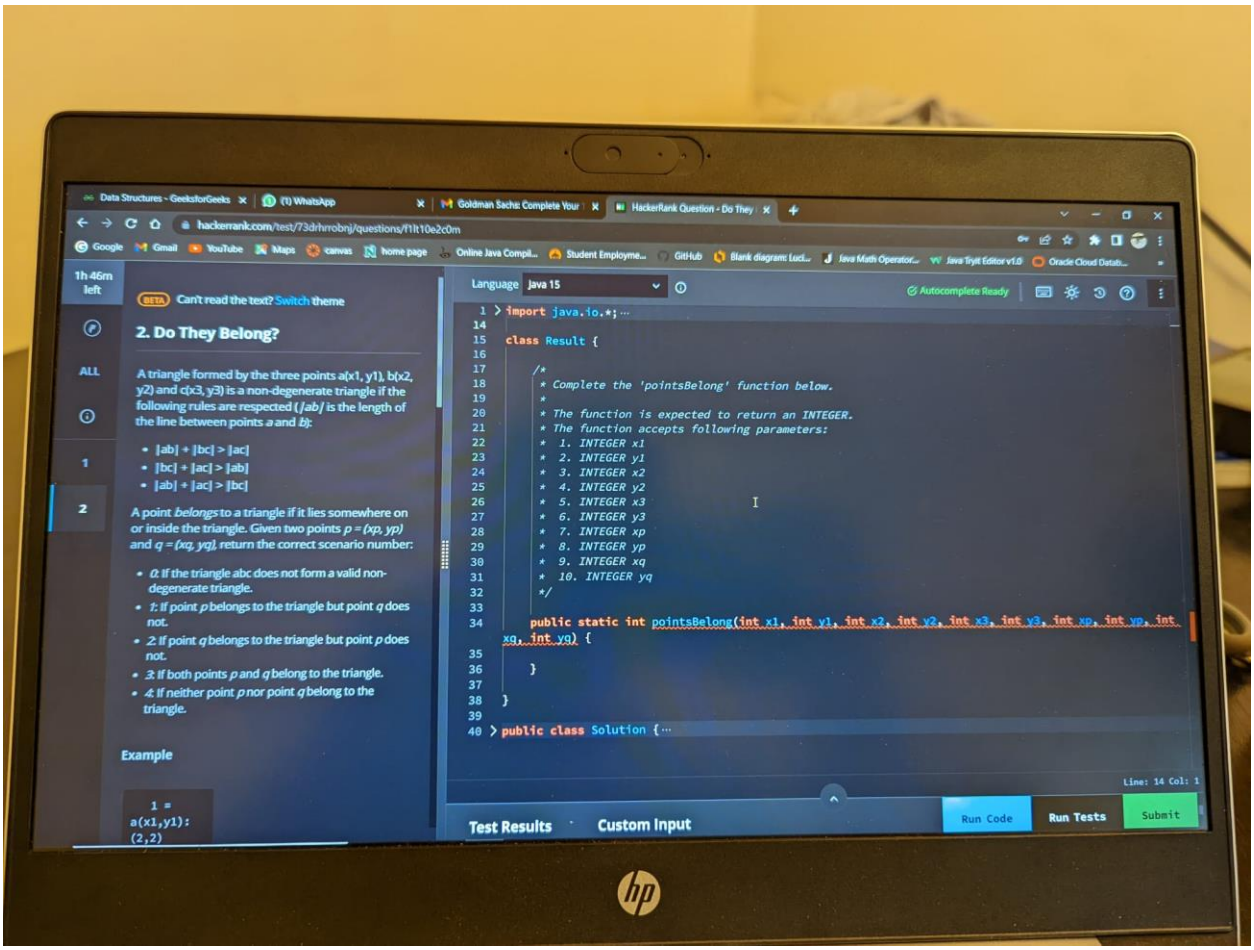


Solution:

```
public static int differentTeams(String skills) {
    int countOfTeams = 0;

    Map<Character, Integer> map = new HashMap<>();
    map.put('p',0);
    map.put('c',0);
    map.put('m',0);
```

```
        map.put('b',0);
        map.put('z',0);

        for(int i=0; i<skills.length(); i++) {
            char ch = skills.charAt(i);
            map.put(ch, (map.get(ch)+1));
        }

countOfTeams = Integer.MAX_VALUE;
        for (Character key : map.keySet()) {
            int value = map.get(key);
            if (value < countOfTeams) {
                countOfTeams = value;
            }
        }
        return countOfTeams;
    }
```

2. Question:



Solution:

```
public static int pointsBelong(int x1, int y1, int x2, int y2, int x3, int y3, int xp, int yp, int xq, int yq){

double ab = Math.sqrt((y2 - y1) * (y2 - y1) + (x2 - x1) * (x2 - x1));

double bc = Math.sqrt((y3 - y2) * (y3- y2) + (x3 - x2) * (x3 - x2));
```

```
double ac=Math.sqrt((y3 - y1) * (y3 - y1) + (x3 - x1) * (x3 - x1));

double[] numbers = {ab,bc,ac};

Arrays.sort(numbers);

if((numbers[0]+numbers[1]<=numbers[2])){
   return 0;
}

/* Calculate area of triangle ABC */
double A = area (x1, y1, x2, y2, x3, y3);

/* Calculate area of triangle PBC */
double A1 = area (xp, yp, x2, y2, x3, y3);

/* Calculate area of triangle PAC */
double A2 = area (x1, y1, xp, yp, x3, y3);


/* Calculate area of triangle PAB */
double A3 = area (x1, y1, x2, y2, xp, yp);
```

```
/* Calculate area of triangle PBC */
double B1 = area (xq, yq, x2, y2, x3, y3);

/* Calculate area of triangle PAC */
double B2 = area (x1, y1, xq, yq, x3, y3);

/* Calculate area of triangle PAB */
double B3 = area (x1, y1, x2, y2, xq, yq);

boolean p = (A == A1 + A2 + A3);
boolean q = (A == B1+B2+B3);

/* Check if sum of A1, A2 and A3 is same as A */
if(p && !q)
   return 1;
else if(!p && q)
   return 2;
else if(p&&q)
   return 3;
else
   return 4;
}
```

```
public static double area(int x1, int y1, int x2, int y2, int x3, int y3)
   {
      return Math.abs((x1*(y2-y3) + x2*(y3-y1)+ x3*(y1-y2))/2.0);
   }
```