Lab03: Software Testing

[3] Test-Driven Development

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Có 18 testcase được thiết kế

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | input | | | | | Tester | Điểm kỳ vọng | **Kết quả** |
| số bài lab | điểm | nộp trễ | buổi đi học | Điểm TB |
| 1 | 4 | 6,7,8.5,9 | 0,0,0,0 | 13 | 7,5 | Trần Duy Thái | 7,5 | Pass |
| 2 | 6 | 6,7,8.5,10 | 0,0,0,0 | 9 | ERROR | Trần Duy Thái | ERROR | Pass |
| 3 | 3 | 4,5,6 | 0,0,0 | 11 | 5 | Trần Duy Thái | 5 | Pass |
| 4 | 5 | 4,5,6,7,8 | 0, 0, 1, 0, 1 | 9 | 5 | Trần Duy Thái | 5 | Pass |
| 5 | 3 | 8,9,11 | 0,0,1 | 10 | ERROR | Trần Duy Thái | ERROR | Pass |
| 6 | 3 | 8,9,-1 | 1, 1, 1 | 9 | ERROR | Trần Duy Thái | ERROR | Pass |
| 7 | 3 | 8,9,10 | 2,0, 0 | 10 | ERROR | Trần Duy Thái | ERROR | Pass |
| 8 | 4 | 5,8,9,10 | 1,0, 0, 0 | 5 | 7 | Trần Duy Thái | 7 | Pass |
| 9 | 4 | 1,2,3,4 | 1,0, 0, 0 | 10 | 2.5 | Trần Duy Thái | 2.5 | Pass |
| 10 | 4 | 1,2,3,4 | 1,0, 0, 0 | 16 | ERROR | Trần Duy Thái | ERROR | Pass |
| 11 | 4 | 1,2,3,4 | 1,0, 0, 0 | -1 | ERROR | Trần Duy Thái | ERROR | Pass |
| 12 | 5 | 5,6,7,8 | 1,0, 0, 1 | 1 | ERROR | Trần Duy Thái | ERROR | Pass |
| 13 | 5 | 5,6,7,8,9 | 1,1,0, 0, 1 | 0 | 5.5 | Trần Duy Thái | 5.5 | Pass |
| 14 | 1 | 1 | 1 | 15 | 1 | Trần Duy Thái | 1 | Pass |
| 15 | 0 | 1 | 1 | 15 | ERROR | Trần Duy Thái | ERROR | Pass |
| 16 | 4 | 1,2,3,4 | 0,0,0,0 | 15 | 2.5 | Trần Duy Thái | 2.5 | Pass |
| 17 | 4 | 6,5,7,4 | 0,0,0,0 | 9 | 5 | Trần Duy Thái | 5 | Pass |
| 18 | 5 | 1,2,3,4,5 | 0,0,0,0 | 10 | ERROR | Trần Duy Thái | ERROR | Pass |

Nội dung file code (cùng với homework\_run\_test.h)

#include "homework\_run\_test.h"

#include <math.h>

#include <stdio.h>

#include <stdlib.h>

#define ERROR -1

float roundScore(float num) { return round(2. \* num) / 2.; }

float average(int lab, float score[], int late[]) {

  int temp\_late = 0;

  for (int i = 0; i < lab; ++i) {

    if (late[i] == 1) {

      ++temp\_late;

      switch (temp\_late) {

      case 1:

      case 2: {

        score[i] \*= 0.9;

        break;

      }

      case 3: {

        score[i] \*= 0.7;

        break;

      }

      default:

        score[i] = 0;

        break;

      }

    }

  }

  float sum = 0;

  for (int i = 0; i < lab; ++i) {

    sum += score[i];

  }

  float avg = sum / lab;

  return avg;

}

float calculatePracticeScore(int lab, float lab\_score[], int late[],

                             int attendance) {

  if (lab <= 0 || lab > 5) {

    return ERROR;

  }

  if (attendance > 15 || attendance < 0) {

    return ERROR;

  }

  for (int i = 0; i < lab; ++i) {

    if (lab\_score[i] < 0 || lab\_score[i] > 10 ||

        (late[i] != 0 && late[i] != 1)) {

      return ERROR;

    }

  }

  float avg = average(lab, lab\_score, late);

  if (avg > 5 && attendance < 10) {

    avg = avg \* 0.9;

  }

  avg = roundScore(avg);

  return avg;

}

int main() {

  homework\_run\_test(1, calculatePracticeScore(4, (float[]){6, 7, 8.5, 9}, (int[]){0, 0, 0, 0}, 13), 7.5);

  homework\_run\_test(2, calculatePracticeScore(6, (float[]){6, 7, 8.5, 9}, (int[]){0, 0, 0, 0}, 9), ERROR);

  homework\_run\_test(3, calculatePracticeScore(3, (float[]){4,5,6}, (int[]){0, 0, 0}, 11), 5);

  homework\_run\_test(4, calculatePracticeScore(5, (float[]){4,5,6,7,8}, (int[]){0, 0, 1, 0, 1}, 9), 5);

  homework\_run\_test(5, calculatePracticeScore(3, (float[]){8,9,11}, (int[]){0, 0, 1}, 10), ERROR);

  homework\_run\_test(6, calculatePracticeScore(3, (float[]){8,9,-1}, (int[]){1, 1, 1}, 9), ERROR);

  homework\_run\_test(7, calculatePracticeScore(3, (float[]){8,9,10}, (int[]){2, 0, 0}, 10), ERROR);

  homework\_run\_test(8, calculatePracticeScore(4, (float[]){5,8,9,10}, (int[]){1,0, 0, 0}, 5), 7);

  homework\_run\_test(9, calculatePracticeScore(4, (float[]){1,2,3,4}, (int[]){1,0, 0, 0}, 10), 2.5);

  homework\_run\_test(10, calculatePracticeScore(4, (float[]){1,2,3,4}, (int[]){1,0, 0, 0}, 16), ERROR);

  homework\_run\_test(11, calculatePracticeScore(4, (float[]){1,2,3,4}, (int[]){1,0, 0, 0}, -1), ERROR);

  homework\_run\_test(12, calculatePracticeScore(5, (float[]){5,6,7,8}, (int[]){1,0, 0, 1}, 1), ERROR);

  homework\_run\_test(13, calculatePracticeScore(5, (float[]){5,6,7,8,9}, (int[]){1,1,0, 0, 1}, 0), 5.5);

  homework\_run\_test(14, calculatePracticeScore(1, (float[]){1}, (int[]){1}, 15), 1);

  homework\_run\_test(15, calculatePracticeScore(0, (float[]){1}, (int[]){1}, 15), ERROR);

  homework\_run\_test(16, calculatePracticeScore(4, (float[]){1,2,3,4}, (int[]){0,0,0,0}, 15), 2.5);

  homework\_run\_test(17, calculatePracticeScore(4, (float[]){6,5,7,4}, (int[]){0,0,0,0}, 9), 5);

  homework\_run\_test(18, calculatePracticeScore(5, (float[]){1,2,3,4,5}, (int[]){0,0,0,0}, 10), ERROR);

  return 0;

}

Kết quả thực thi chương trình:

A screen shot of a computer screen

Description automatically generated