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SUBJECT: SOFTWARE QUALITY ENGINNERING

SUBMITTED TO: SIR SAMIR OBAID

CASE STUDY

(Problem Statement)

Each year many people apply to join the Army as a **Officer** – as part of the tough selection process they are required to fill a form and army officer briefing and also a main board. For the board the applicant will be required to fill a form for the registration for initial test. Entry requirement is Intermediate. There are again few categories in Regular Commission. Those who join for the battlefield and pure armed forces services go through **PMA** Course. While there are other who provide support services to those engaged in the battlefield **I.e.** Engineering services, these enter through this form.

Those having FSc Pre-engineering or ICS with Physics can apply for Cadet Course. ISSB Selected candidates are required to complete four years engineering degree in Electrical, Civil, Computer, Software, Mechanical, Telecom, Mechatronics or Aeronautical Engineering from Military colleges. Studies are financed by Pakistan Army. One Year Military Training is provided at Pakistan Military Academy Kakul, after the completion of four years Engineering Degree.

At very start of this form we will ask academics from the applicant if their education criteria occurs at the below of the required condition they cannot further fill the registration form, they will experience an eligibility error at that time.

After academics there will be another form which will ask the applicant for their physical condition. In case if their physical condition gets below the line for the requirement for this registration they still cannot be able to further fill the form. Moving on to the last page of the form, this form, Remember that others will be relying on you too, and this is why the Army includes a fitness test in their selection process. This will ask the applicant for their fitness condition .The fitness requirement is also included in this form because if any of the candidates passed all other condition except fitness then there will be no opportunity for the remaining applicants. If again if the fitness of the applicant doesn't matches with the criteria of the form the applicant automatically gets rejected.

Pak Army is a physically demanding job, applicant has to be a fitness fanatic to be successful in your application. It's important that an applicant have a reasonable level of fitness, as applicant may be required to carry heavy equipment or supplies, or move continuously when on patrol. Providing you pass all the required standards, you will then be invited at an Army Development and Selection Centre.

ASSIGNMENT 01

1. Void check Acadamics (double Mmarks, double Fmarks)
    {
        If (50>=Mmarks <=100 && 60>=Fmarks<=100)
    {
    // do something}}
        Boundary values for analysis
            Matric marks = 50, 51,75,99,100
        Fsc marks = 60,61,80,99,100

        Total number of test cases:-
            5n=> n=2 =>5^2=> 25

        Tests={ <50.0, 60.0>, <50.0,61.0>, <50,80>, <50,99>, <50,100>, <51,60>,
                <51,61>, <51,80>,<51,99>, <51,100>, <75,60>, <75,61>, <75,80>, <75,99>,
                <75,100>, <99,60>, <99,61>,<99,80>, <99,99> , <100,60>, <100,61>, <100,80>,
                <100,99>, <100,100>}

2. Void check physique (int Age, double Height)
    {
       If(18>=Age<=24)&&5.6>=Height<=7.0)
    {
       //do something}}
    Boundary value for analysis.
    Age = 18, 19,21,23,24
    Height= 5.6, 5.7,6.3,6.9,7.0

    Total number of test cases.
    5^n=>n=2=>5^2=>25
    Test cases:- {<18,5.6>, <18,5.7>, <18,6.3>, <18,6.9>, <18,7.0>, <19,5.6>, <19,5.7>, <19,6.3>,
                <19,6.9>, <19,7.0>, <21,5.6>, <21,5.7>, <21,6.3>, <21,6.9>, <21,7.0>, <23,5.6>,
                <23,5.7>, <23,6.3>, <23,6.9>, <23,7.0>, <24,5.6>, <24,5.7>, <24,6.3>, <24,6.9>,<24,7.0>}

3. Void checkFitness (int pushups, int pullups, double running)
    {
     If (20>=pushup<=50&&10>=pullups<=30&&5>=running<=10)
    {
       //do something}}
    Boundary values for Analysis:-
    Pushups= 20, 21, 33, 49, 50
    Pullups= 10, 11,18,29,30
    Running= 5, 5.1, 8.5, 9.9, 10

Total number of test cases:-

$5^n => n=3 => 5^3 = 125$

Total cases = { <20,10,57>, <20,11,5.1>, <20,18,8.5>,
<20,29,9.9>, <20,30,10>, <21,10,5>,
<20,11,5.1>, <21,18,8.5>, <21,29,9.9>,
<21,30,10>, <33,10,5>, <33,11,5.1>,
<33,18,8.5>, <33,29,9.9>, <33,30,10>,
<49,10,5>, <49,11,5.1>, <49,18,8.5>,
<50,11,5.1>, <50,18,8.5>,<50,29,9.9>,
<50,30,10>, <20,10,5>, <21,10,5.1>,
<33,10,8.5>, <49,10,99>,<50,10,10>,
<33,1 1,8.5>, <20,11,5>, <21,11,5.1>,
<33,11,8.5>, <49,11,9.9>, <50,11,10>,
<20,18,5>, < 21,18,5.1>, <33,18,8.5>,
<49,18,9.9>, <50,18,10>, <20,29,57>,
<21,29,5.1>, <33,29,8.5>, <49,29,9.9>,
<50,29,10>, <20,30,5>, <21,30,5.1>,
<33,30,8.5>, <49,30,9.9> <50,30,10>,
<20,10,5>, <21,11,5>, <33,18,5>,
<49,29,5>, <50,30,5>, <20,10,5.1>,
<21,11,5.1>, <33,18,5.1>, <49,29,5.1>,
<50,30,5.1>, <20,10,5.1>, <21,11,8.5>
<33,18,8.5>, <49,29,8.5>, <50,30,8.5>,
<20,10,9.9>, <21,11,9.9>, <33,18,9.9>,
<49,29,9.9>, <50,30,9.9>, <20,10,10>,
<21,11,10>, <33,18,10>, <49,29,10>,
<50,30,10>, <20,10,5>, <20,10,5.1>,
<20,10,8.5>, <20,10,9.9>, <20,10,10>,
<21,11,5>, <21,11,5.1>, <21,11,8.5>,
<21,11,9.9> <21,11,10>,<33,18,5>,
<33,18,5.1>,<33,18,8.5>,<33,18,9.9>
<33,18,10>,<49,29,5>, <49,29,5.1>
<49,29,8.5>, <49,29,9.9>, <49,29,10>
<50,30,5>, <50,30,5.1>, <50,30,8.5>
<50,30,9.9>, <50,30,10>, <50,30,10.1>
<20,10,5>, <20,11,15>, <20,18,5>
<20,29,5>,<20,30,5>,<21,10,5.1>
<21,11,5.1>, <20,18,5.1>, <21,29,5.1>
<21,30,5.1>,<33,10,8.5>,<33,11,8.5>,<33,18,8.5>,<33,29,8.5>,<33,30,8.5>
<49,10,9.9>,<49,11,9.9>, <49,18,9.9>, <49,29,9.9>,<49,30,9.9>, <50,10,10>
<50,11,10>,<50,18,10>,<50,29,10>,<50,30,10>