

Cameron Weston

9/7/2022

CSC455: Software Quality Assurance

Fall 2021, Assignment #1

Date Assigned: Thursday, September 1, 2022

Due Date: Thursday, September 08, 2022 at 11:59 pm (on
blackboard) (100 points)

Problem 01 (30 Points)

Software Failure	Reason	Estimated Cost	Proposed Solution
Bluecross Blueshield of NC	Management moved on even after discovering bugs	\$3.6 million	Fix the bugs before implementing more
Emergency Call Center	There was a hidden limit of 40 million calls, causing the rest to drop	Service for 11 million people	Monitor the values of variables stored while the program is running
Therac-25 radiation therapy	Multithreaded processes doing the same things at the same time	5 lives	Data monitoring in real time
2003 North America Blackout	Alarms didn't show up on their control system	Service for 50 million people	Regularly scheduled software tests after implementation
Virginia Commonwealth University billing scam	Email phishing scam	470,000	Train employees on phishing and other attacks that can compromise their system
GitLab data loss	Server overload, no data backups	I estimate \$100,000 for software developer costs to repair	Back up systems regularly
British Airways data breach	Website security issue	280 million	Hire hackers to hack your website
Google+ security bug	An API allowed any on the same network to view sensitive information	0	Code refactoring with focus on data privacy and privilege control

Hawaii false missile alarm	Miscommunication during practice drill	0	Practice better Communication with team members, separate the testing environment and live alert system
Pixel 2 XL OS missing	Random reboots and no QA, some of them had no operating system at all	millions	Develop system on the factory level that ensure that every piece that you sell is working properly

Problem 02 (35 Points)

1.)

Input	Output	Pass/Fail
10, 1, 2	1 \$	Fail
10, 2, 2	400\$	Fail
10, 5, 2	1000\$	Fail
0, 0, 0	0\$	Pass
-1, 5, 2	-100\$	Fail
10, 11, 4	4400\$	Fail
10, -1, 4	-1 \$	Fail
10, 2, 4	2 \$	Fail
100, 2, 4	30 \$	Fail
10, 2, -1	400 \$	Fail

2.) Problems:

- Overtime hours are allowed to exceed 10
- No input validation for negative numbers
- The overall calculations are wrong

3.)

Input	Output	Pass/Fail
10, 1, 2	11.5\$	Pass
10, 2, 2	23\$	Pass
10, 5, 2	66 \$	Pass
0	exit	Pass
-1	exit	Pass
10, 11	exit	Pass
10, -1	exit	Pass
10, 2, 4	23 \$	Pass
100, 2, 4	230\$	Pass
10, 2, -1	exit	Pass

Problem 03 (35 points)

1.)

Input	Output	Pass/Fail
2	prime	pass
1	prime	fail
9	prime	fail
27	prime	pass
-1	prime	fail
4	prime	fail
100	Not prime	pass
55	prime	fail
11	prime	pass
999999999999	2147483647 is not a prime	fail

2.) Problems:

- No input validation
- Code doesn't work overall, unusable