SWEN 200 - Final Exam

December 13, 2021

Name _____

1) Git Merge + Testing (50 pts)

A project starts with two files: impl.js, and impl.test.js

impl.ts

```ts
export interface TrainingEvent {
  name: string
  description: string
  start: Date
  end: Date
}

let events: TrainingEvent[] = []

export function addEvent(event: TrainingEvent) {
  events.push(event)
}

export function deleteEvent(event: TrainingEvent) {
  events = events.filter((e) => e !== event)
}

export function find(text: string): TrainingEvent | undefined {
  return events.find((event) => event.name === text)
}

```

impl.test.ts

```ts
import { TrainingEvent, addEvent, deleteEvent, find } from "./impl"

const mockEvents: TrainingEvent[] = [
  { name: "an Event", description: "b", start: new Date(), end: new Date() },
]

describe("mock TrainingEvents", () => {
  it("should be defined", () => {
    expect(mockEvents).toBeDefined()
  })

  it("should be able to add new events", () => {
    for (const m of mockEvents) {
      addEvent(m)
    }
    const e: TrainingEvent | undefined = find("an Event")
    if (e) {
      expect(e.name).toBe("an Event")
      expect(e.description).toBe("b")
    } else {
      fail("Event not found")
    }
  })
})
```

- One developer is asked to make the search work for substrings within the name. You can find their code in the "substring_name_search" branch of your repository.

- Another developer is asked to search by either the name or the description. You can find their code in the "description_search" branch of your repository.

- Your goal is to merge these branches so all the functions still "work" and also to modify the tests so these functionalities are still tested.

2) (25 pts) Ethics Case: Recall the 10 aspects of the code of ethics are: PUBLIC, CLIENT AND EMPLOYER, PRODUCT, JUDGMENT, MANAGEMENT, PROFESSION, COLLEAGUES, SELF

Marcus is a computer engineer who has recently developed an app which helps users keep track of medical information, doctor's appointments, and prescriptions.

Information about the user is stored in this app, including what prescriptions they are taking and how frequently they schedule doctor's appointments. As the developers of the app, Marcus and his company have access to this information.

The marketing department requests Marcus supply them with customer-specific information so they can better target ads and app suggestions to the users. Marcus understands that he is part of a company, but also feels that the privacy of the app users should be protected. Additionally, Marcus feels that as an engineer, he should be responsible to those who use his technology.

How does Marcus determine how much of the user's information should be shared with marketing? Is this an ethical use of information or a violation of the user's privacy? Explain.

3) Design Alternatives (25 pts)

In the Academy Events application there could be more events than can be conveniently displayed on the screen at one time.

1) In order to prevent the user from being overwhelmed one strategy is to download the events into memory, but to present them to the user in "batches" that can be controlled with user interface elements (e.g., buttons, links, scroll bars, etc.).
2) Another approach is to batch the events on the server and only keep a few batches in memory at any given time.

Describe the advantages and disadvantages of each approach. In particular consider at least *one* of the following contexts: global, economic, environmental, or societal. If you are making assumptions WRT the application's user base size, business model, or computing resources, please state them explicitly.