

Subject: where do all those bad programmers end up?

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From: Joseph Picone <picone@temple.edu>

To: nedc\_research <nedc\_research@googlegroups.com>, ECE 1111  
<temple\_engineering\_ece1111@googlegroups.com>

Perhaps the most important part of programming is debugging. To debug code you have to think of all the important test cases – what we often call edge cases – that might break your code. It only takes one fatal bug to cause a disaster.

So let me begin with an interesting anecdote:

Some of you know that I am a big fan of public transportation. Like Sheldon in The Big Bang Theory, I especially enjoy trains ;)

Last night, I traveled home from the airport attempting to use public transportation. I normally take a train and then a bus. The SEPTA app reported that buses and trains were on holiday schedules yesterday, and their wonderful Next To Arrive app wasn't working properly. It showed that no buses were running close to my house.

Since I arrived at 5 PM, there was no chance to catch the last #28 bus. It was hard to get home otherwise. I ended up taking the RR to Fern Rock, the #70 to Cottman and Algon, and then walking home (1 mile with luggage – not fun :)

Just as I arrived home, a #28 bus arrived at my house. I was <expletive deleted>. Supposedly, they weren't running, but they were actually running after all...

I called SEPTA this morning. Turns out it was a bug in their system. The buses were on normal schedules while the trains were on holiday schedules. They spent all day trying to fix it (supposedly) but couldn't.

How does this relate to ECE 1111 and coding in ISIP?

I bet someone who programmed the app never expected buses and trains to be on different schedules. They probably just assumed both would always be on the same schedule. This is what we call an edge case.

The buses it turns out were on a normal weekday schedule even though Jan. 2 was technically a holiday. The trains, however, were on a holiday schedule. That is a test case they obviously never thought of. SEPTA said they spent all day trying to fix it, but my guess is it was a fatal design in the software.

As a programmer, you have to put a lot of thought into edge cases. This involves an intimate understanding of the application space, the algorithms and the software.

ECE 1111 Students: We are going to stress debugging in this course. You have to be very meticulous about debugging every line of code you write! Do not turn in buggy code – you might end up with a score less than 0 on an assignment or exam (yes, this has happened!).

-Joe