**Autista App Bug Issues and Resolutions:**

App crashes for several reasons including:

1. In the method **advanceToNextLetterPosition** of type mode the variable \_*currentLetterPosition,* which corresponds to the index of current letter, was not getting initiated and updated in right locations of the code. This issue was resulting in an invalid index (sometimes -1) for the array of letters and causing the app throwing an uncaught exception and crashing subsequently. The code is modified to address this issue.
2. The duplication of Button Action Handler for TypePuzzleViewController in the header of this class was causing an ambiguity that sometimes was making the app crash. The redundant Button Action Handler is removed.
3. In the method **handlePanGesture** of TouchPuzzleViewController in touch mode, once the gesture was ending, it no longer had any touches, so there was no touch at index 0 to retrieve; this was causing the app to crash in such situation. To alleviate this issue the lines with:

**CGPoint initialTouchPoint = [gesture locationOfTouch:0 inView:self.view];**

are replaced with:

**CGPoint initialTouchPoint = [gesture locationInView:self.view];**

1. In the type mode, i.e. the TypePuzzleViewController, the code has been changed to ensure no invalid location (nil) is being passed to the EventLogger.

2016-08-22 16:50:00.603 Autista[9187:567012] Touch Moved

2016-08-22 16:50:00.606 Autista[9187:567012] Touch Ended

2016-08-22 16:50:00.607 Autista[9187:567012] 766.000000, 85.000000, 54.000000, 54.000000

2016-08-22 16:50:00.607 Autista[9187:567012] the touch location is 465.500000, -378.000000

2016-08-22 16:50:00.712 Autista[9187:567012] Touch Began

2016-08-22 16:50:17.652 Autista[9187:567012] CoreData: error: Serious application error. Exception was caught during Core Data change processing. This is usually a bug within an observer of NSManagedObjectContextObjectsDidChangeNotification. -[\_\_NSCFSet addObject:]: attempt to insert nil with userInfo (null)

2016-08-22 16:50:17.653 Autista[9187:567012] \*\*\* Terminating app due to uncaught exception 'NSInvalidArgumentException', reason: '-[\_\_NSCFSet addObject:]: attempt to insert nil'

\*\*\* First throw call stack:

(0x1822f2db0 0x181957f80 0x1822f2cf8 0x182211a9c 0x184180588 0x18417f360 0x184177f44 0x1822a8728 0x1822a64cc 0x1822a68fc 0x1821d0c50 0x183ab8088 0x1874b2088 0x100098484 0x181d6e8b8)

libc++abi.dylib: terminating with uncaught exception of type NSException

(lldb)

2016-08-22 17:10:07.884 Autista[9198:571026] Touch Moved

2016-08-22 17:10:07.928 Autista[9198:571026] Touch Moved

Autista(9198,0x1a035c000) malloc: \*\*\* error for object 0x13a7b6120: double free

\*\*\* set a breakpoint in malloc\_error\_break to debug

The following line in viewWillAppear() for all Say, Type, and Touch Puzzle View Controllers are disabled to prevent core data multi-threading issue for accelerometer readings:

//[[EventLogger sharedLogger] logEvent:LogEventCodeTypeAccelerometer eventInfo:@{@"X": [NSString stringWithFormat:@"%+.2f", accelerometerData.acceleration.x], @"Y": [NSString stringWithFormat:@"%+.2f", accelerometerData.acceleration.y], @"Z": [NSString stringWithFormat:@"%+.2f", accelerometerData.acceleration.z]}];

Uploading the data to the server also causes the app to violate concurrency on core data which does not seem to be a big deal as the function is not called frequently, so it can be sorted later.