Introduction
Data visualization is the graphical display of abstract information, often serving two purposes: sense-making and communication (Card, Mackinlay, & Shneiderman, 1999). Research has shown that data visualization is a powerful means to discovery, understanding, and communicating about the important stories that live in our data (Armitage, 2016). This presentation focuses on using data dashboards to report information on student enrollment and degrees awarded at Texas A&M University-Commerce. The department of Institutional Effectiveness and Research focuses on delivering efficient and effective data-driven outputs to university administrators to enable evidence-based decision making. Historically, data reports have been in a static format with limited information delivered. For example, when using an Excel spreadsheet, it may consist of multiple tabs in a single spreadsheet delivering efficient and effective data-driven outputs to university administrators. This presentation demonstrates the powerful influence of data visualization.

Static Reporting
There are limitations to using static HTML or Excel reports for analyzing data:
- It is time consuming if conducted manually.
- Automated tools do not support all programming languages.
- Automated tools produce false positives and false negatives.
- There are not enough trained personnel to thoroughly conduct static code analysis.
- Automated tools can produce a false sense of security that everything is being addressed.
- Automated tools only as good as the rules they are using to scan with.
- It does not find vulnerabilities introduced in the runtime environment.

Dynamic Dashboards and Info Apps
Info Apps are highly interactive, analytical apps for non-technical users. Info Apps deliver interactive analytic content such as data visualizations, charts, graphs, and reports. Info Apps go beyond dashboards by offering a variety of controls and filters on a custom user interface to aid with highly intuitive decision support. Examples of Info Apps include self-contained data visualizations, predictive analytics apps, guided self-service reports, and search-based apps, all of which can be customized for a highly personalized user experience.

Methodology and Tools
We use WebFOCUS App Studio to create reports and charts by coding or using the GUI. Custom parameters based on different fields from tables in the banner are assigned to get custom outputs. Filters based on requirements like College, Level, Gender, Ethnicity and Majors are added using WHERE clauses. In addition, it is important to give the user the ability to get their output in various formats, not just Excel. HTML painter is used to create parameter pages which include drop downs, radio buttons etc. Special tasks need to be assigned to each user control based on their selection or clicks. Finally, BI portal formatting needs to ensure efficient use of real estate for all the charts and reports. Fluid canvas is the most common layout for all the dashboards. We can also add multiple charts and reports in a single panel by adding new tabs thus allowing users to view up to 15 reports in a single dashboard. Info App sorts are created to allow selection of different sorts such as college, level, gender, residency etc. which combined with the filter allows to create thousands of distinct reports at the ease of one click.

Discussion
It is very clear from the study that using Info Apps gives advantages over static reports. They are extremely straight-forward and easy to use. An intuitive interface, workflow, and interactivity enable users to analyze and manipulate information, with no training required. A single Info App can be used to answer hundreds, even thousands of questions from your data. They are web and mobile-optimized, and can be consumed on any desktop or device - tablets, PCs, laptops, or smartphones. They significantly cut down on licensing, development, and maintenance costs. They offer high visual appeal and custom branding. With Info Apps, BI becomes more pervasive than ever before. Business users no longer have to attend training or read long manuals to learn complex analytical tools. Instead, they can leverage simple, purpose-built apps that put vital information right at their fingertips. Info Apps can be efficiently and economically built using Information Builders WebFOCUS BI platform, and shared with any user, inside or outside the firewall.