Is it worth of doing Bachelors in Computer Science ?

Is it worth of doing Masters in Information Systems?

Important Resources

Time

Information's

Choices

Decision Making

Cost

YOUR CAREER

YOU DREAM IT, WE MAKE IT

Presented By

Md Faisal Akbar

Instructor: Kumud Majumder

MIS G4010 System Analysis & Design

Objectives

Develop a web application which will assist students to choose a right career path in an effective and convenient way

Input Parameter

Answer only four questions:

Which degree are you interested in?

Which Program are you interested in?

Where would you like to do the Program?

Your Standardized Test Score?

System Input

Answer only three questions:

Which degree are you interested in?
Example: Bachelor or Masters

Which Program are you interested in?
Example: Computer Science

Where would you like to do the Program?
Example: New York

Your Standardized Test Score?
Example: SAT, ACT, GRE, GMAT TOEFL

System Output

- List of Colleges offers the Program with:
- Each College Ranking and Reviews.
- Admission Requirement for the Program in each college including application fee, number of recommendation required, standardized Test (SAT, ACT, GRE, GMAT, TOEFL etc) score, Statement of purpose etc.
- Details about Cost per Credit or entire program cost, scholarship, and financial aid.
- Types of Course (Offline, Online, Hybrid).
- Courses offers in the program with course material.
- Rating or Reviews of each Professor for each course.
- Number of student enrolled per year in each college.
- Percent of students graduate per year from each college.

Output

- Student can sort college list based on low rank to high rank or low standardized test score to high standardized test score required.
- Location or address.
  - Number of Job available per year (Example: for computer engineer) in different states or country.
  - Average salary per year (Example: for computer engineer).
  - Forecast of Job Opportunity for 5 to 15 years based on previous years data (Example: for computer engineer).
  - Market Competition (Competitors vs Opportunity).

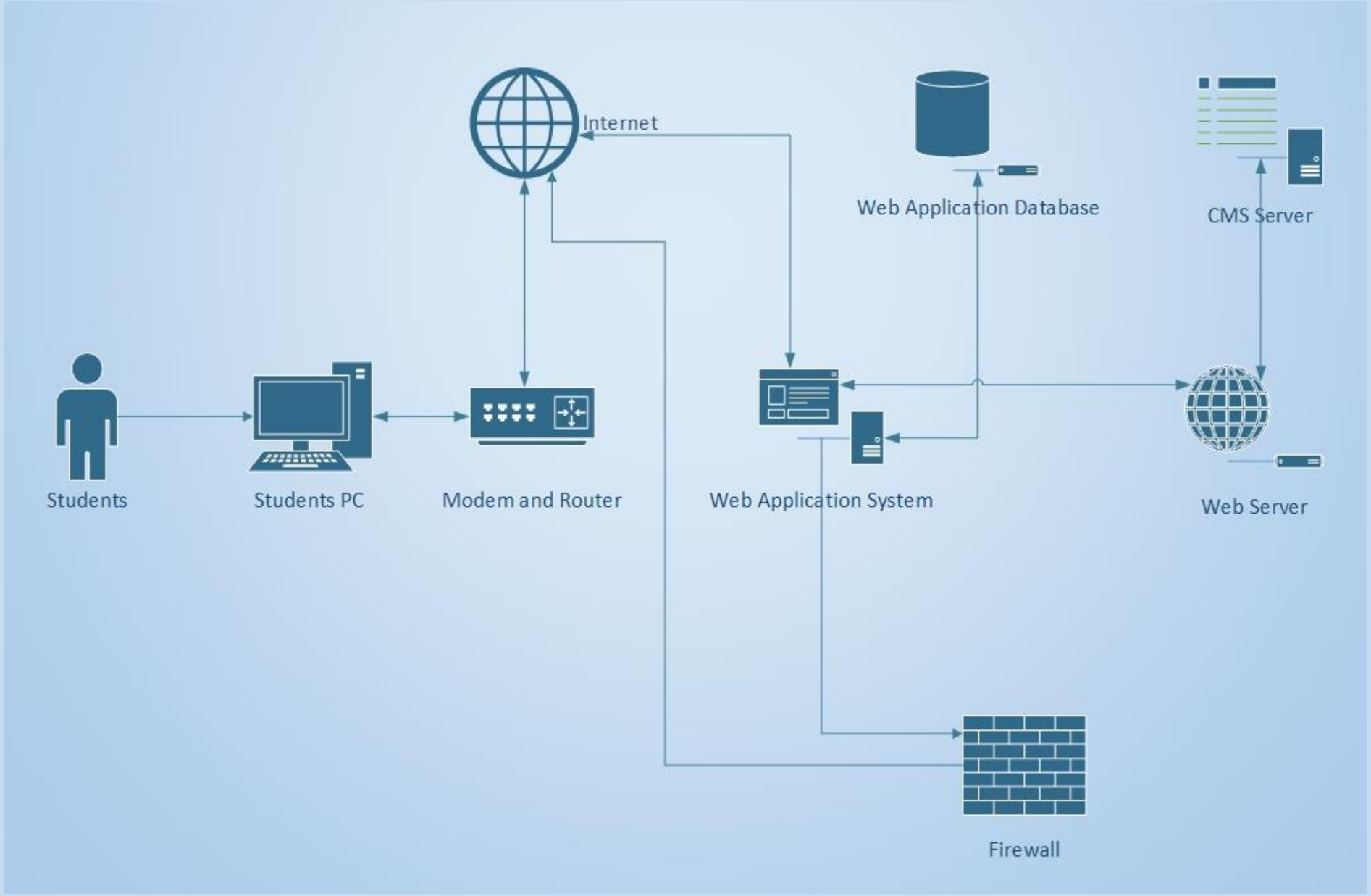
Web- Application Development Cost

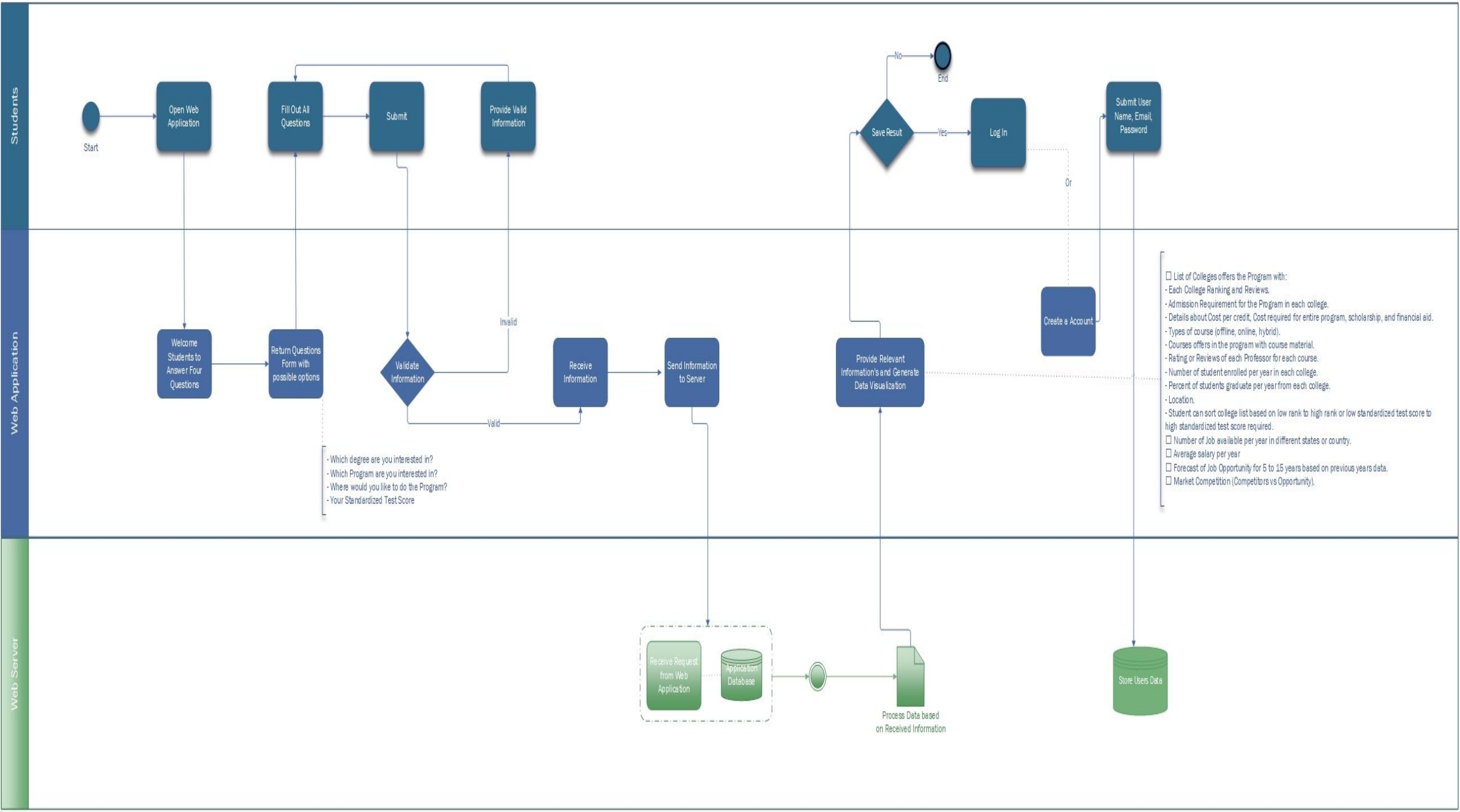
		LOW	HIGH
Number of pages	150 - 250	$ 6,500	$ 10,000
Style of design	High end	$ 5,000	$ 10,000
Copywriting # of pages	25-50	$ 3,750	$ 7,500
SEO w/ Placement Guarantee	150 keywords	$ 6,000	$ 10,000
Responsive Design	Yes	$ 3,000	$ 3,000
Database Integration	Full development	$ 10,000	$ 25,000
e-Commerce Functionality	Advanced	$ 4,000	$ 10,000
CMS	Enterprise	$ 10,000	$ 25,000
Total Estimated Quote		**$ 48,250**	**$ 100,500**

Web- Application Development Cost

Non-Recurrent Cost	Cost
Hardware and Software	2,500
Service Implementation	48,250 – 100,500
IT-Staff	100,000
Total	150,750 – 203,000

Recurrent Cost	Cost
Hardware and Software	400
Service Maintenance	10,000
IT-Staff	75,000
Total	85,400


Internet
Web Application Database
CMS Server
Students
Students PC
Modem and Router
Web Application System
Web Server
Firewall


Students
Web Application
Web Server
Start
Open Web Application
Fill Out All Questions
Submit
Provide Valid Information
No
End
Save Result
Yes
Log In
Or
Submit User Name, Email, Password
Welcome Students to Answer Four Questions
Return Questions Form with possible options
Validate Information
Invalid
Valid
Receive Information
Send Information to Server
Provide Relevant Information's and Generate Data Visualization
Create a Account
- Which degree are you interested in?
- Which Program are you interested in?
- Where would you like to do the Program?
- Your Standardized Test Score
☐ List of Colleges offers the Program with:
- Each College Ranking and Reviews.
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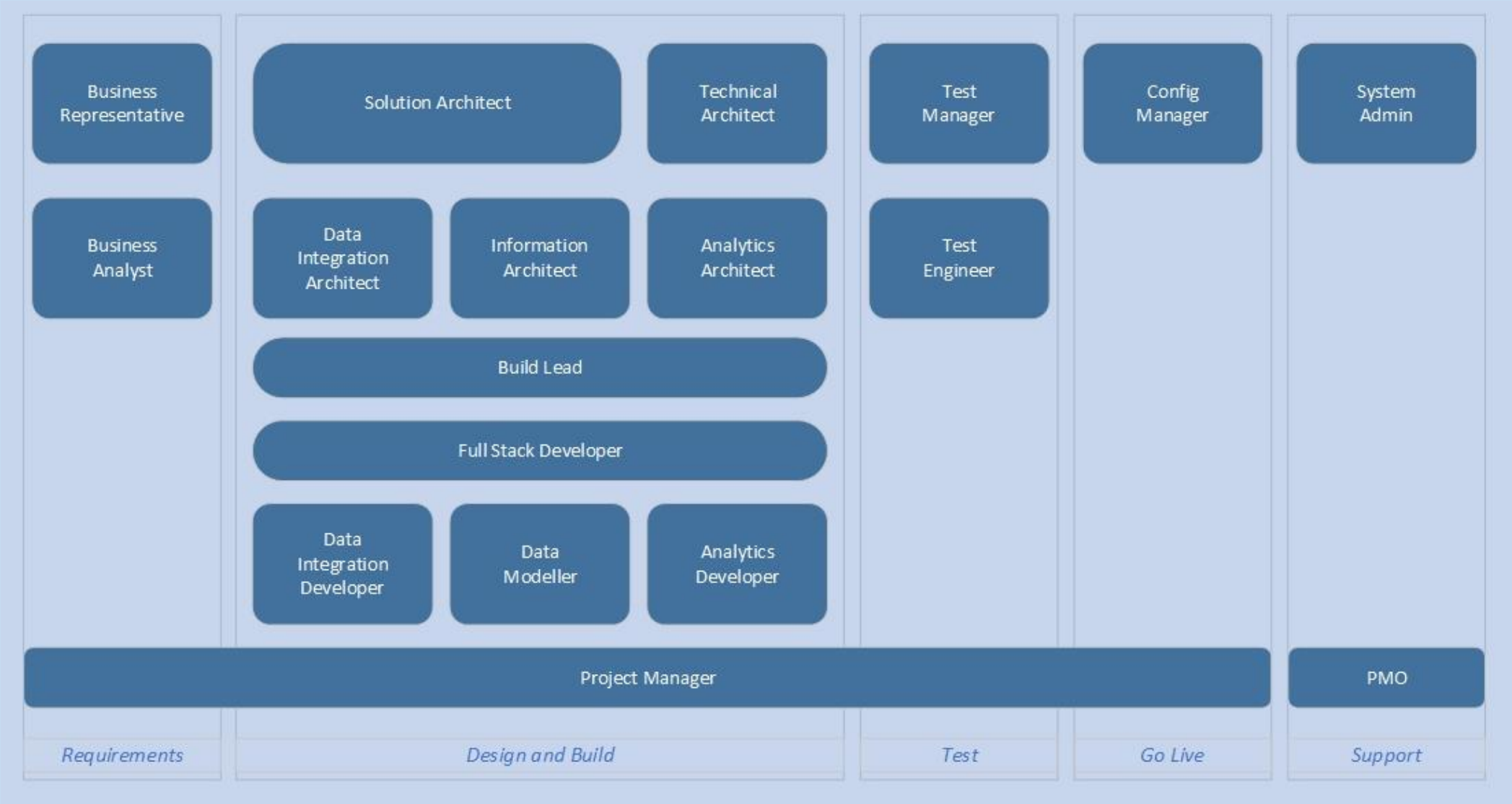
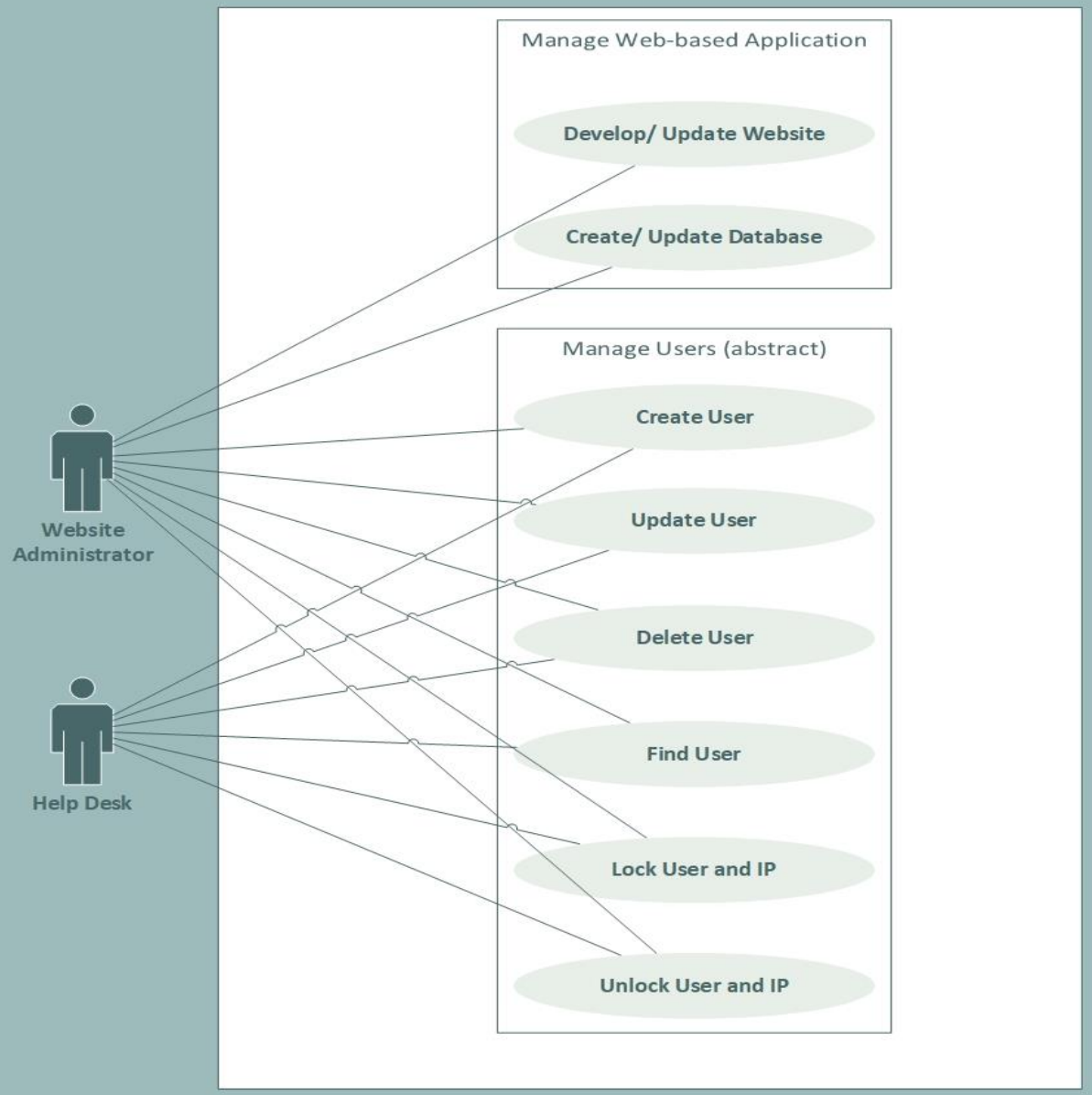
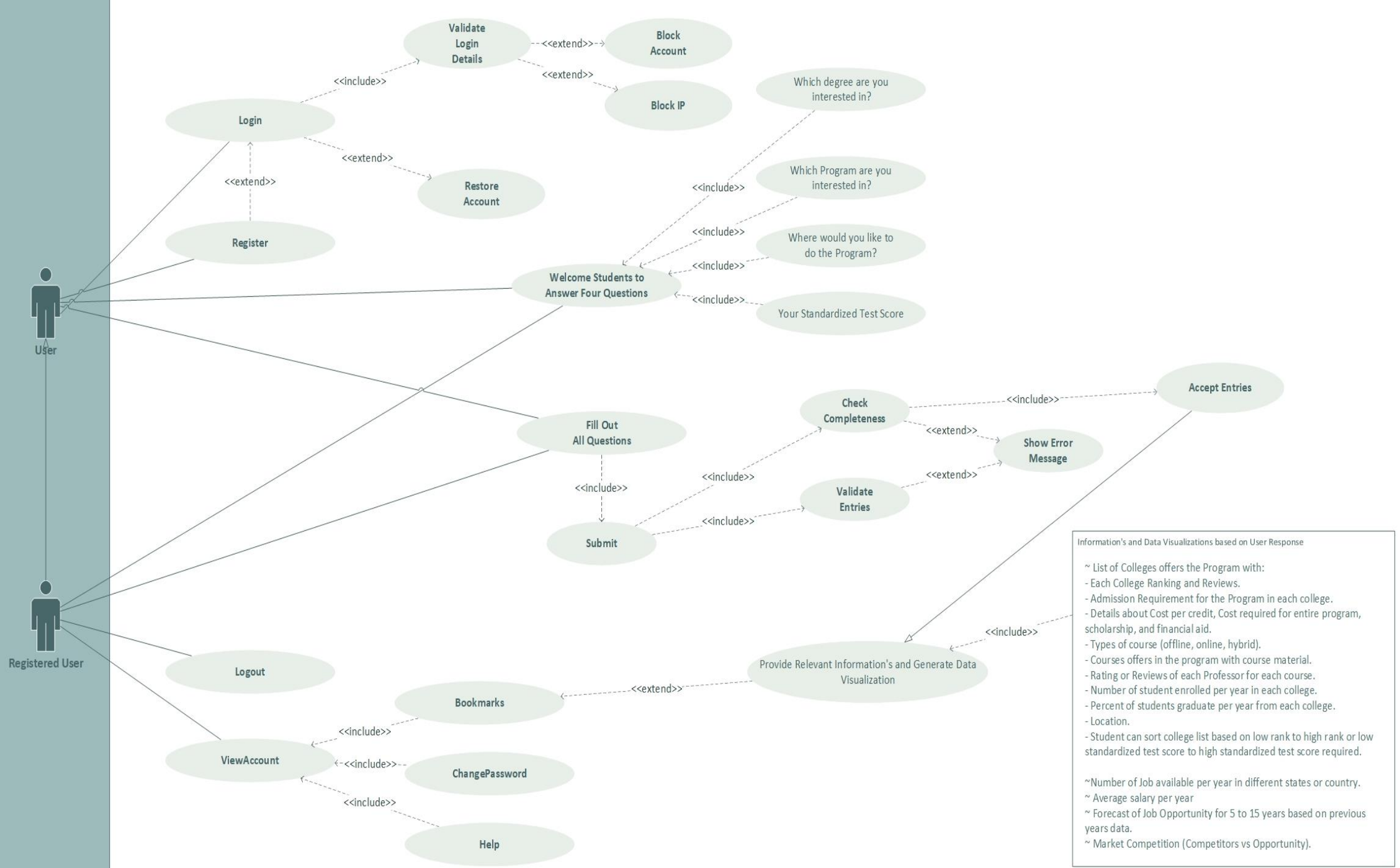
☐ Average salary per year
☐ Forecast of Job Opportunity for 5 to 15 years based on previous years data.
☐ Market Competition (Competitors vs Opportunity).
Receive Request from Web Application
Application Database
Process Data based on Received Information
Store Users Data


Business Representative
Solution Architect
Technical Architect
Test Manager
Config Manager
System Admin
Business Analyst
Data Integration Architect
Information Architect
Analytics Architect
Test Engineer
Build Lead
Full Stack Developer
Data Integration Developer
Data Modeller
Analytics Developer
Project Manager
PMO
Requirements
Design and Build
Test
Go Live
Support


Manage Web-based Application
Develop/ Update Website
Create/ Update Database
Manage Users (abstract)
Create User
Update User
Delete User
Find User
Lock User and IP
Unlock User and IP
Website Administrator
Help Desk


Validate Login Details
<<extend>>
Block Account
<<extend>>
Block IP
<<include>>
Login
<<extend>>
Restore Account
<<extend>>
Register
Which degree are you interested in?
Which Program are you interested in?
Where would you like to do the Program?
Your Standardized Test Score
<<include>>
<<include>>
<<include>>
<<include>>
Welcome Students to Answer Four Questions
User
Fill Out All Questions
<<include>>
Check Completeness
<<include>>
Accept Entries
<<extend>>
Show Error Message
<<include>>
<<extend>>
Validate Entries
<<include>>
Submit
Registered User
Logout
Bookmarks
<<extend>>
Provide Relevant Information's and Generate Data Visualization
<<include>>
<<include>>
ViewAccount
<<include>>
ChangePassword
<<include>>
Help
Information's and Data Visualizations based on User Response
~ List of Colleges offers the Program with:
- Each College Ranking and Reviews.
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~ Forecast of Job Opportunity for 5 to 15 years based on previous years data.
~ Market Competition (Competitors vs Opportunity).

STORYBOARD

YOUR CAREER

YOU DREAM IT, WE MAKE IT

A Web-based Solution for Your Career

December 2017

Md Faisal Akbar

MIS G4010 System Analysis and Design

Submitted to

Instructor: Kumud Majumder

MIS, CCNY

STORYBOARD

Click Here for live Sample from Tableau Public Server

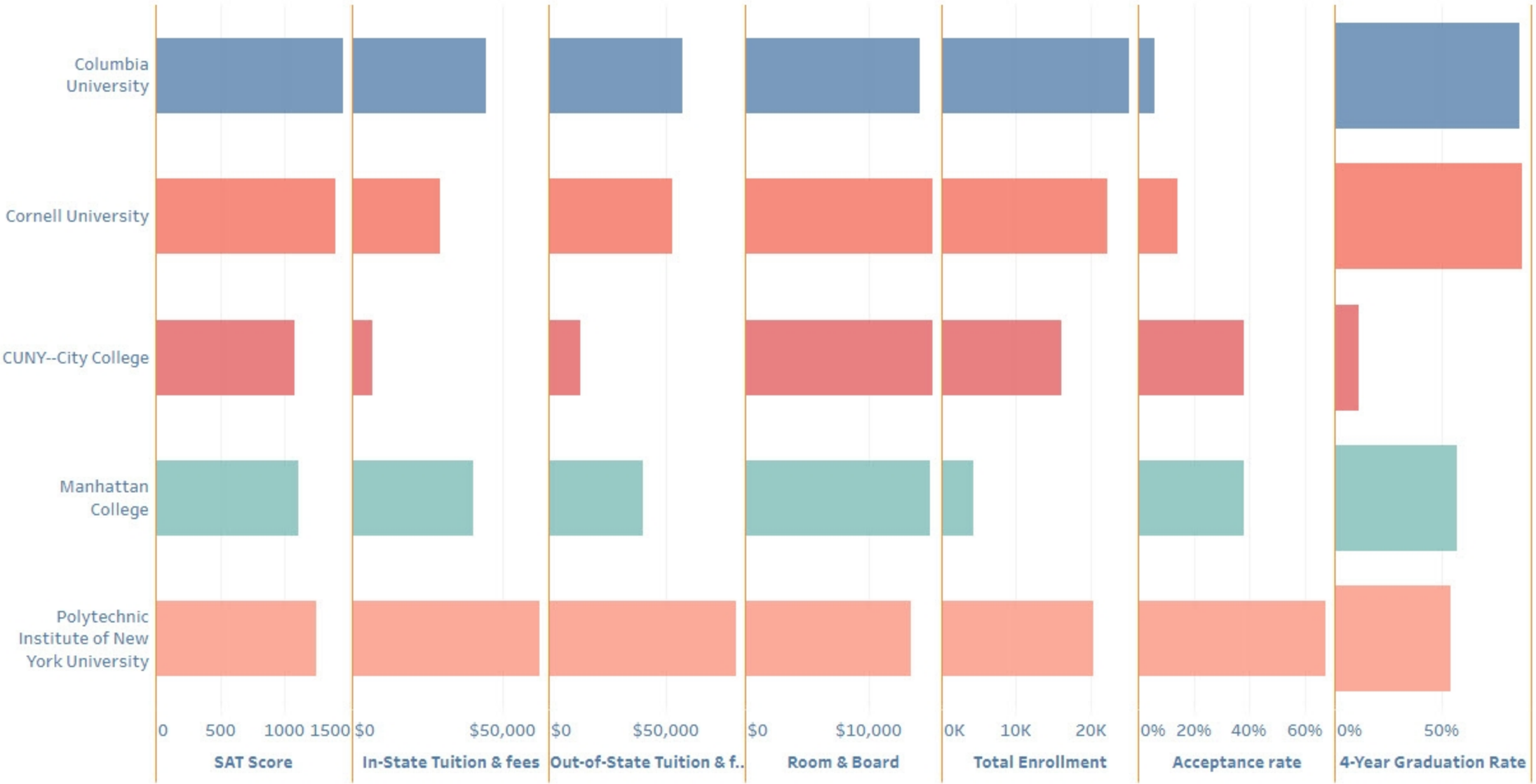
Degree
Bachelor's

Program
COMPUTER ENGINEERING

SAT Score
800 1,450

State
New York

Colleges You may Apply



Degree
Bachelor's

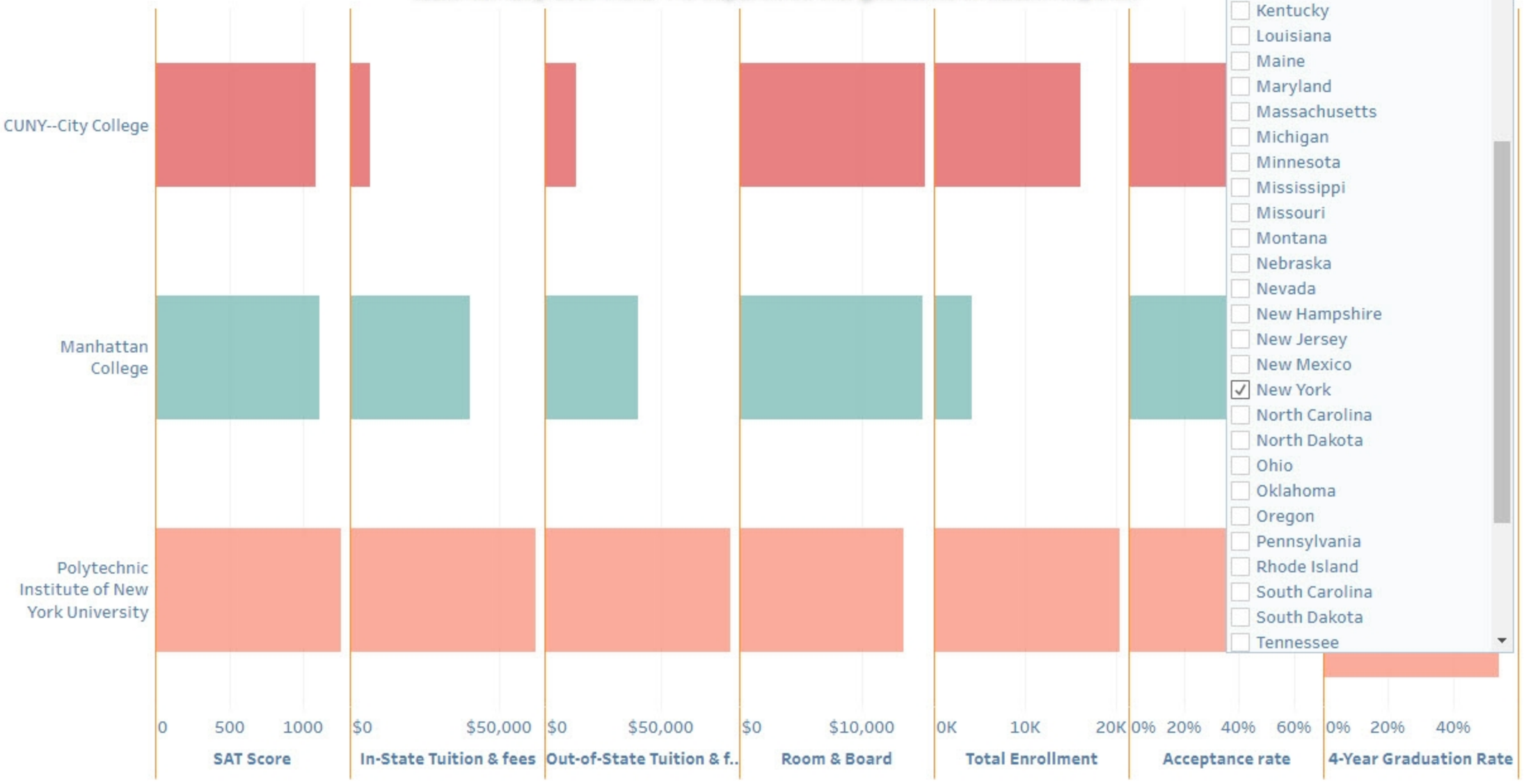
Program
COMPUTER ENGINEERING

SAT Score
800 1,283

State
New York

Colleges You may Apply

Student can change SAT score range, choose different degree, program,
State from drop down menu. The output will be changed based on student response.



- Indiana
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- ☑ New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee

Degree
Bachelor's

Program
COMPUTER ENGINEERING

SAT Score
800

When student Hover over on a college bar, they will get more details informations about that college

Colleges You may Apply

College:	Cornell University, New York
SAT Score:	1,390
In-State Tuition & fees:	$29,500
Out-of-State Tuition & fees:	$52,853
Room & Board:	$15,189
Total Enrollment:	22,319
Acceptance rate:	14%
4-Year Graduation Rate:	87%

Ranking:
#14 (tie) in National Universities
#3 in Best Colleges for Veterans
#18 in Best Value Schools
#5 (tie) in High School Counselor Rankings
#15 (tie) in Most Innovative Schools
#7 (tie) in Business Programs
in Finance, Management, Marketing
#11 in Quantitative Analysis
#10 in Real Estate
#10 in Best Undergraduate Engineering Programs
At schools whose highest degree is a doctorate
#4 (tie) in Biological / Agricultural
At schools whose highest degree is a doctorate
in Biomedical
At schools whose highest degree is a doctorate
in Chemical
At schools whose highest degree is a doctorate
#10 in Civil
At schools whose highest degree is a doctorate
#9 inComputer
At schools whose highest degree is a doctorate
#9 in Electrical / Electronic / Communications
At schools whose highest degree is a doctorate
#11 (tie) in Environmental / Environmental Health
At schools whose highest degree is a doctorate
#10 (tie) in Industrial / Manufacturing
At schools whose highest degree is a doctorate
#8 in Materials
At schools whose highest degree is a doctorate
#9 in Mechanical
At schools whose highest degree is a doctorate

When student click on any of the suggested college name in the previous section, they will get more details information about that college

CUNY-- City College

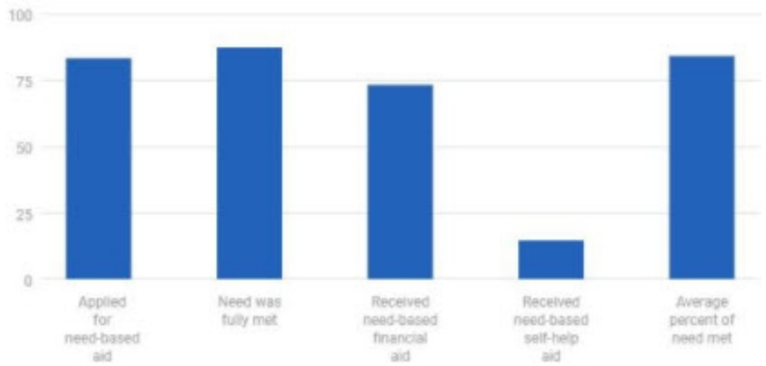
SAT Requirements

SAT Range		Applicants Submitting SAT	
1080-1310		94%	
SAT Reading 25th	520	SAT Reading 75th	640
SAT Math 25th	560	SAT Math 75th	670
SAT Composite 25th	1080	SAT Composite 75th	1310

Estimated Chance of Acceptance by SAT Score

SAT Score (1600 scale)	Competitiveness	Admission Chances
1310 and Above	GOOD	>56%
1195 to 1310	AVG +	43%-56%
1080 to 1195	AVG -	31%-43%
965 to 1080	REACH	21%-31%
Less than 965	LOW	<21%

Financial aid statistics



In-state tuition and fees	$6,689 (2017-18)
Out-of-state tuition and fees	$13,799 (2017-18)
Room and board	$15,189 (2016-17)

Class sizes

Classes with fewer than 20 students	43.8%
20-49	55.8%
50 or more	0.4%

Student-faculty ratio	15:1
4-year graduation rate	11%

Five most popular majors for 2016 graduates

- Engineering, 15%
- Social Sciences, 12%
- Education, 10%
- Visual and Performing Arts, 10%
- English Language and Literature/Letters, 6%

Overall Rating

Academics

Value for Money

Professors / Faculty

Campus Atmosphere

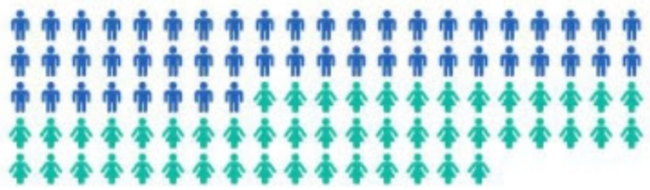
Housing

Campus Safety

Student gender distribution

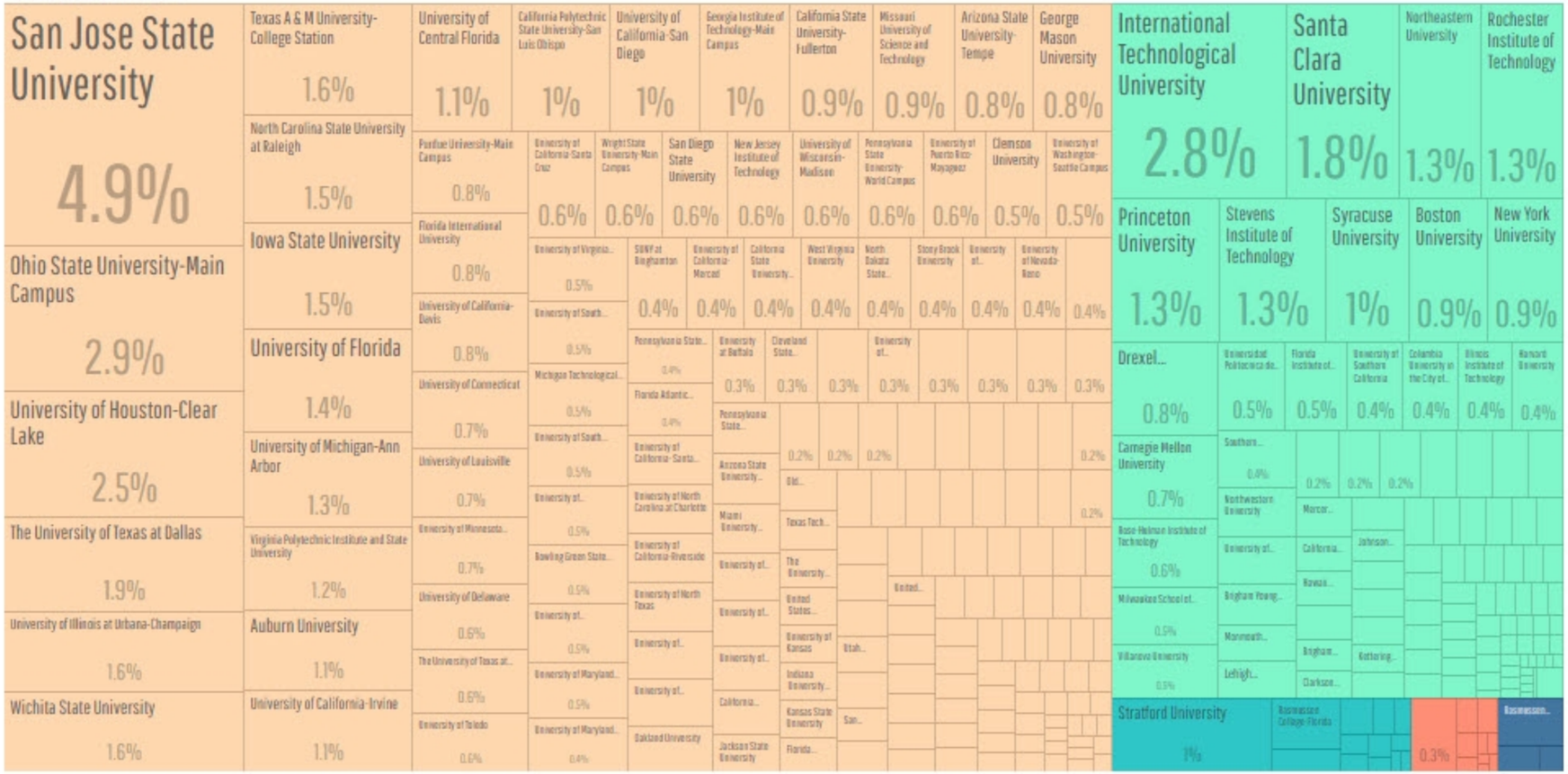
50%

Male



Student will get information (in heat map) about most degree awarded by different colleges in different years based on the program they have selected in the first section

Institutions



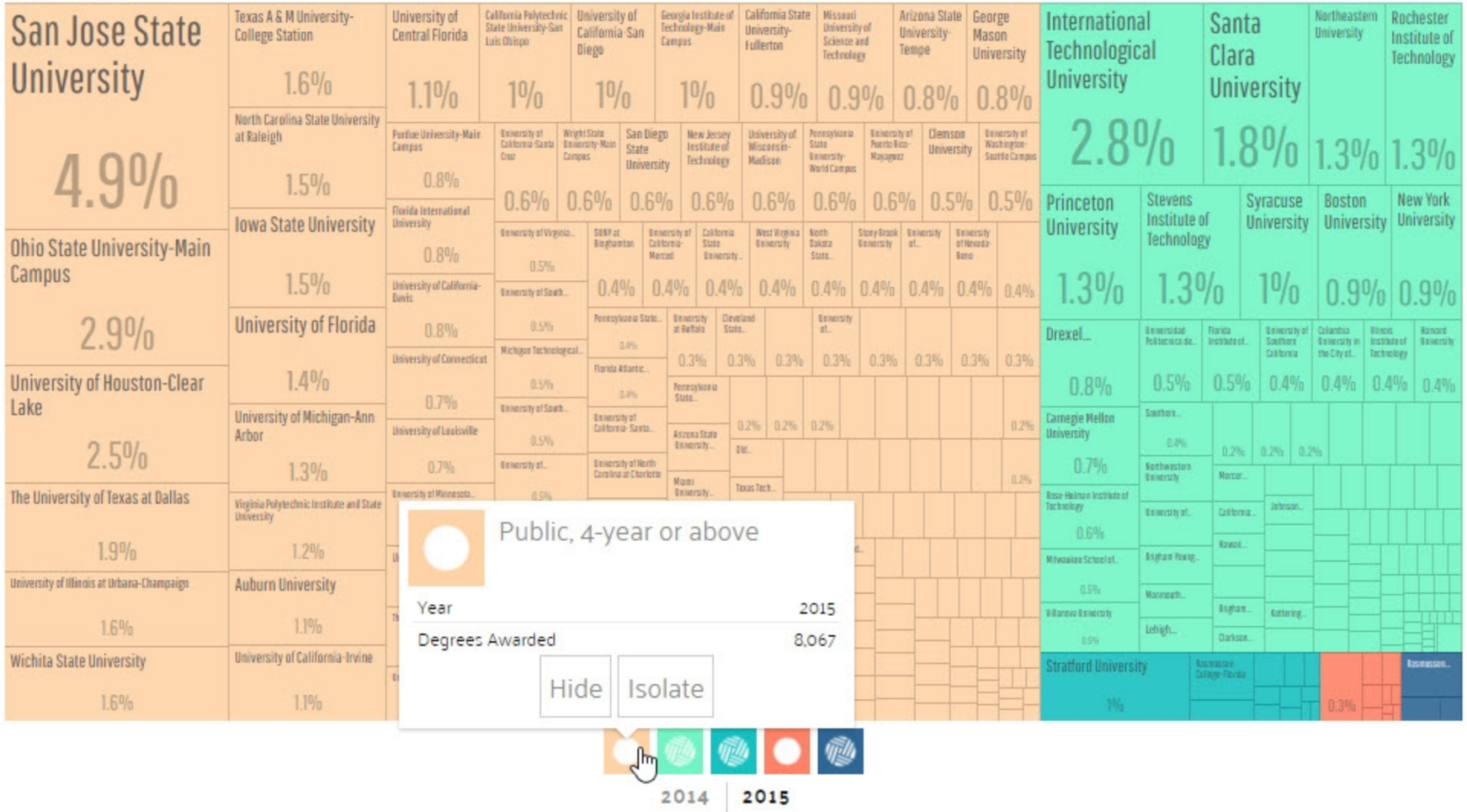
Dataset: NCES IPEDS
Source: Department of Education

INSTITUTION WITH THE MOST DEGREES AWARDED IN COMPUTER ENGINEERING

1. San Jose State University
2. Ohio State University-Main Campus
3. International Technological University

Student will get information (in heat map) about most degree awarded by different colleges (public, private) in different years based on the program they have selected in the first section.

Institutions



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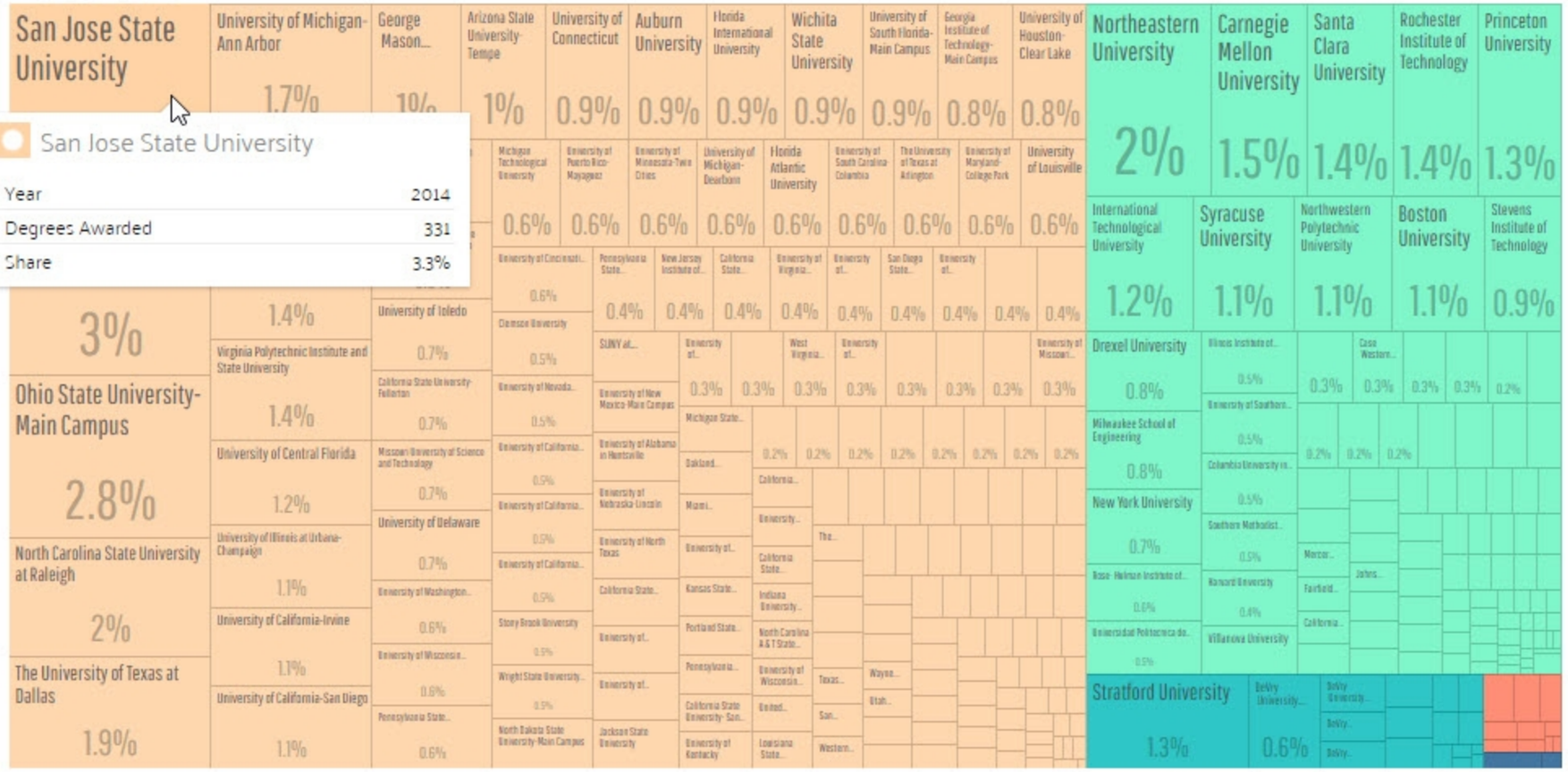

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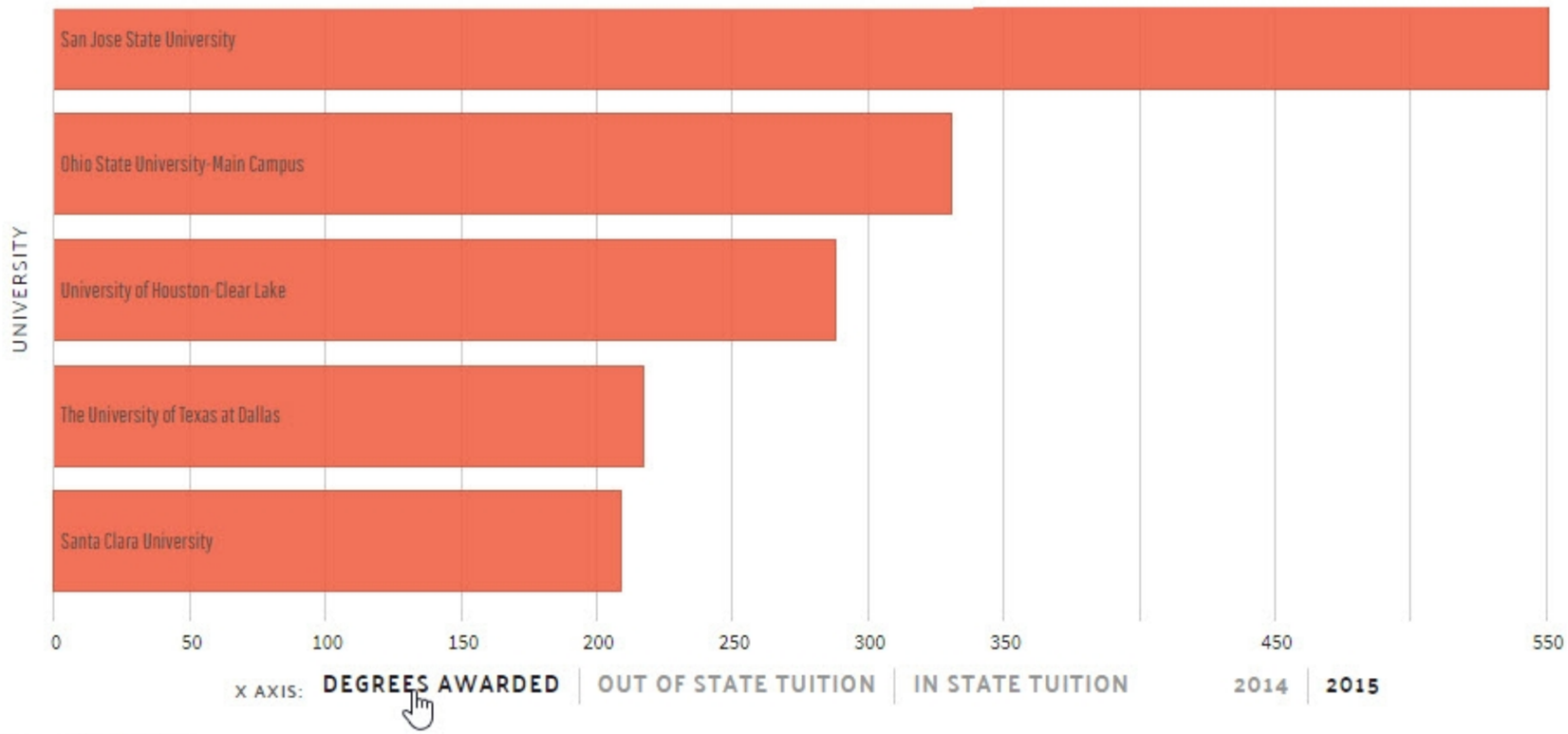
INSTITUTION WITH THE MOST DEGREES AWARDED IN COMPUTER ENGINEERING

1. San Jose State University
2. Ohio State University-Main Campus
3. International Technological University

1. Compare Common Institutions DEGREE AWARDED for the program they selected in the first section for different years.

Tuition Costs for Common Instituitions



Dataset: NCES IPEDS
Source: Department of Education

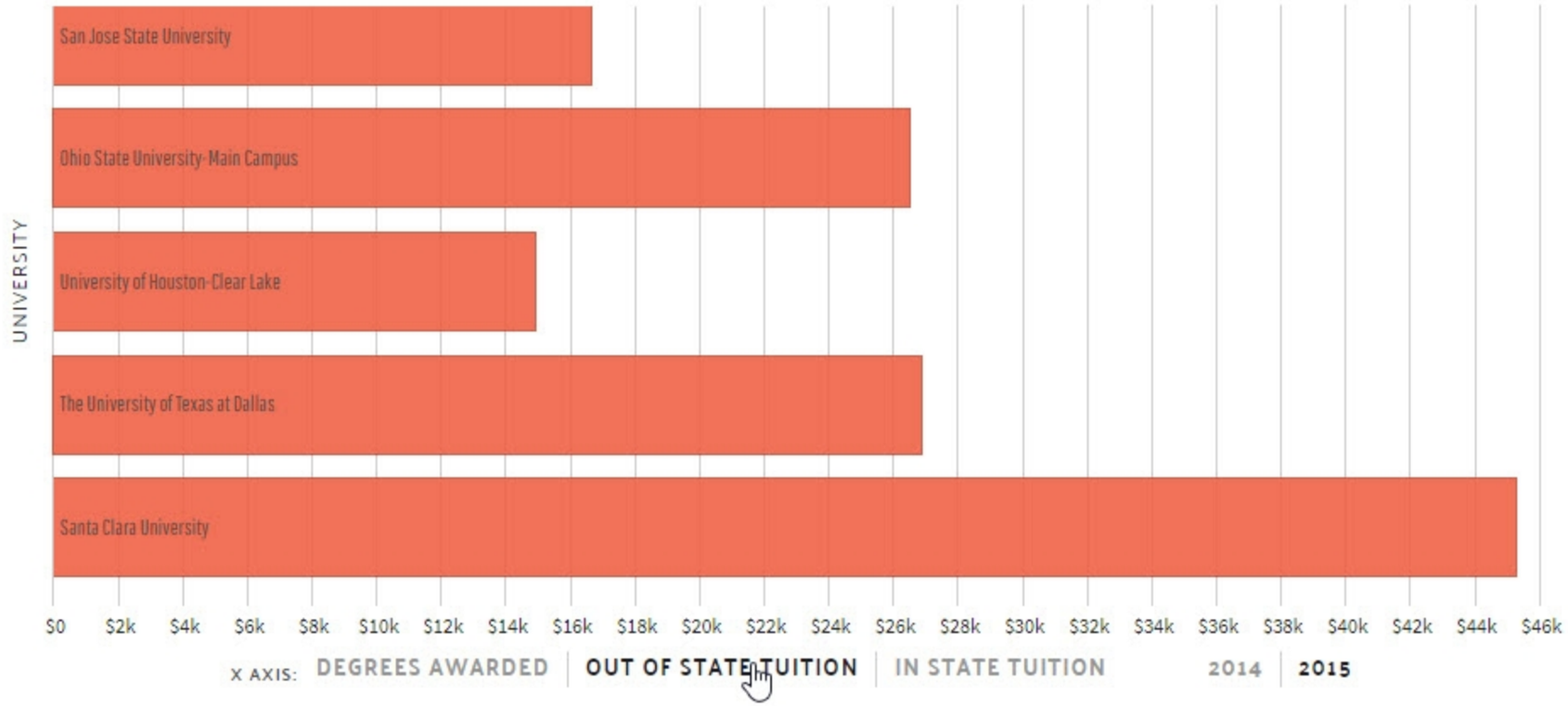
$7,632
MEDIAN IN-STATE PUBLIC

$38,583
MEDIAN OUT OF STATE PRIVATE

This visualization shows the tuition costs of the 5 institutions with the most Computer Engineering graduates by number.

2. Compare Common Institutions OUT OF STATE TUITION for the program they selected in the first section for different years.

Tuition Costs for Common Instituitions



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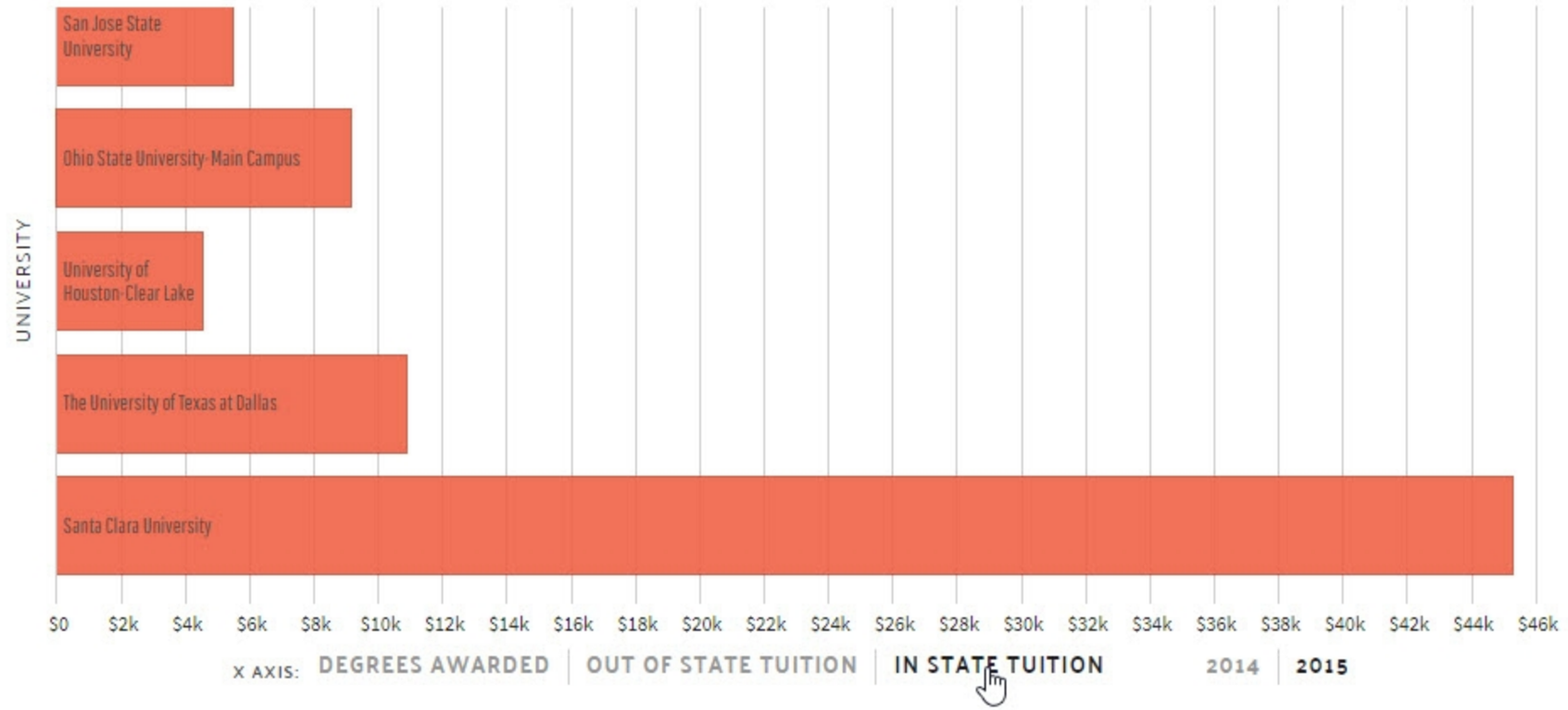

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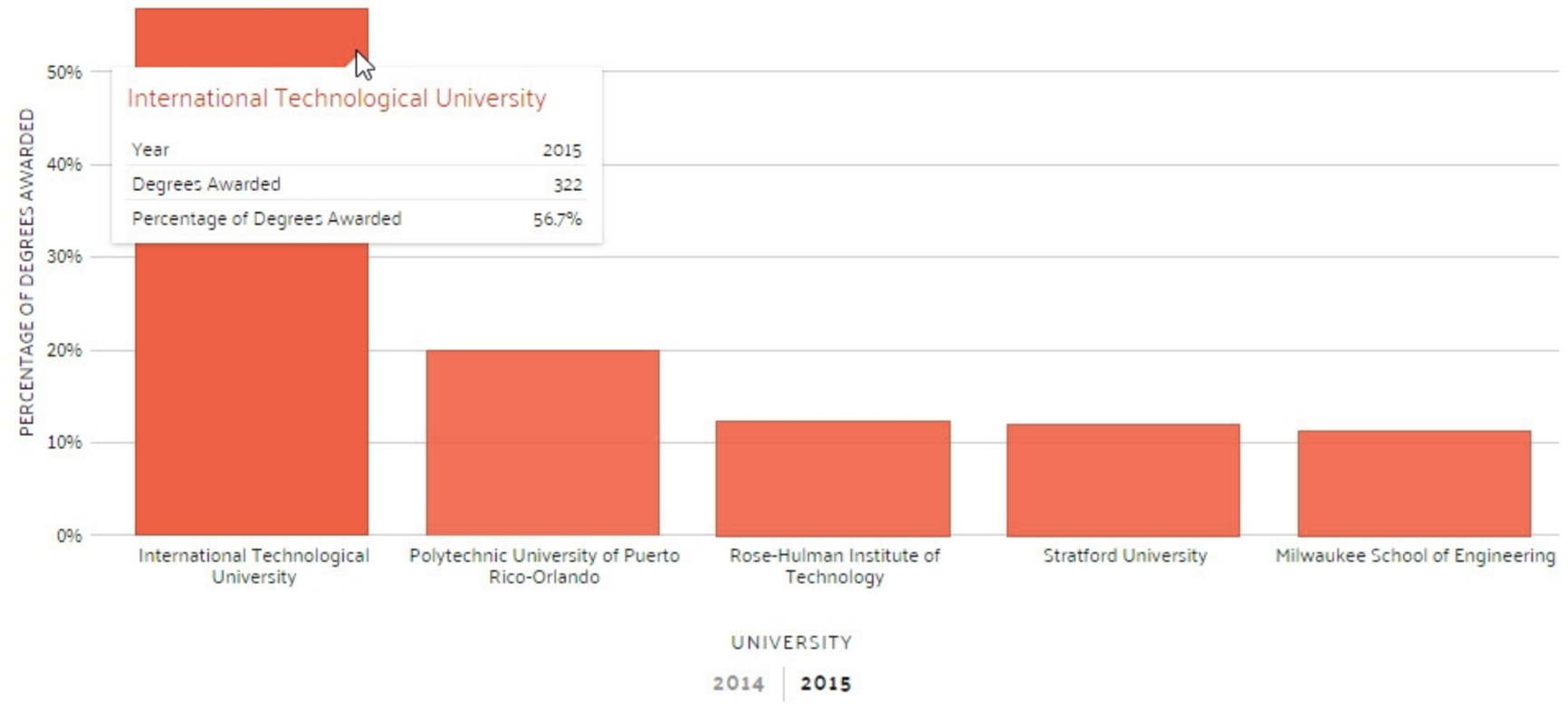
Specialized Colleges



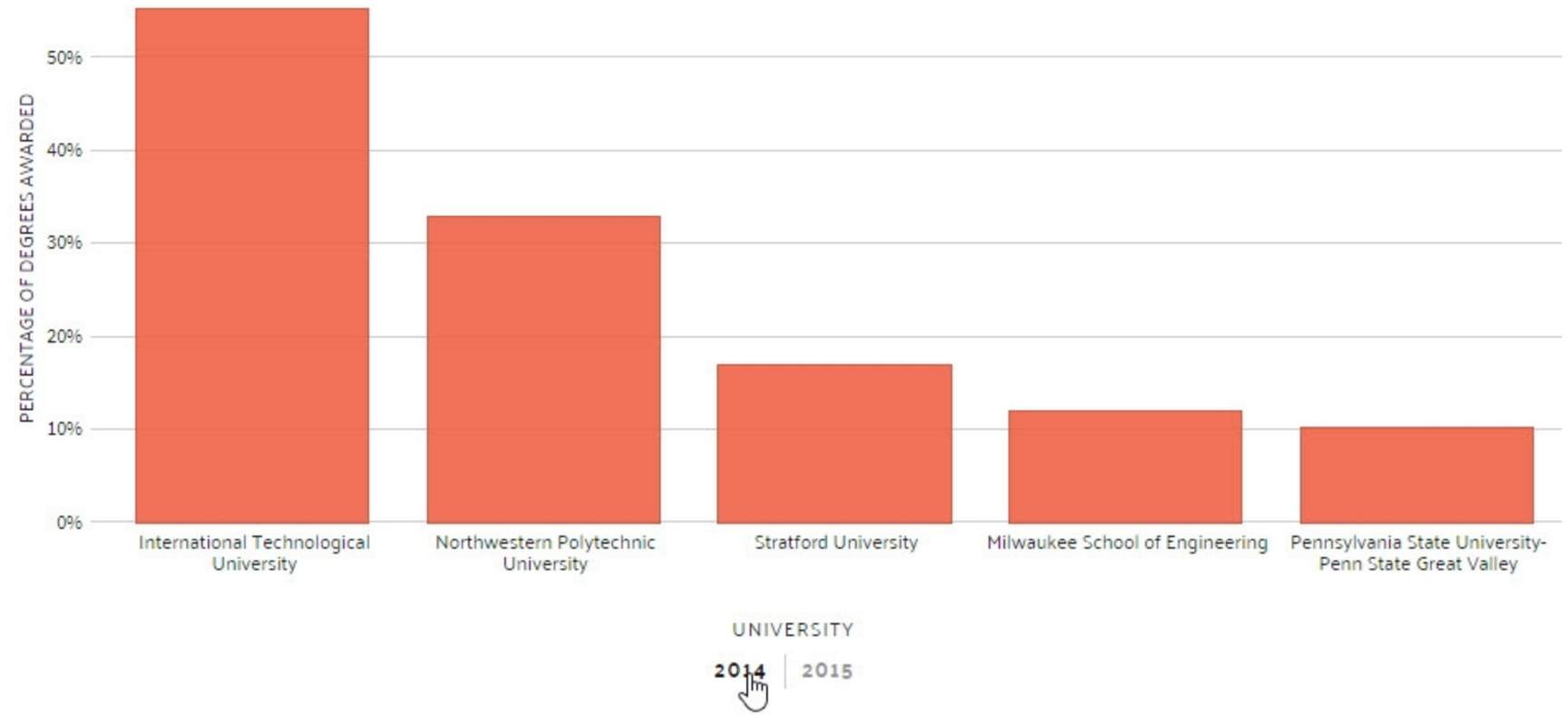
Dataset: NCES IPEDS
Source: Department of Education

HIGHEST CONCENTRATION INSTITUTION

1. International Technological University~ 56.7%
2. Polytechnic University of Puerto Rico-Orlando~ 20%
3. Rose-Hulman Institute of Technology~ 12.4%

International Technological University and Polytechnic University of Puerto Rico-Orlando have the highest percentage of degrees awarded in Computer Engineering, with 56.7% and 20%, respectively.

Specialized Colleges



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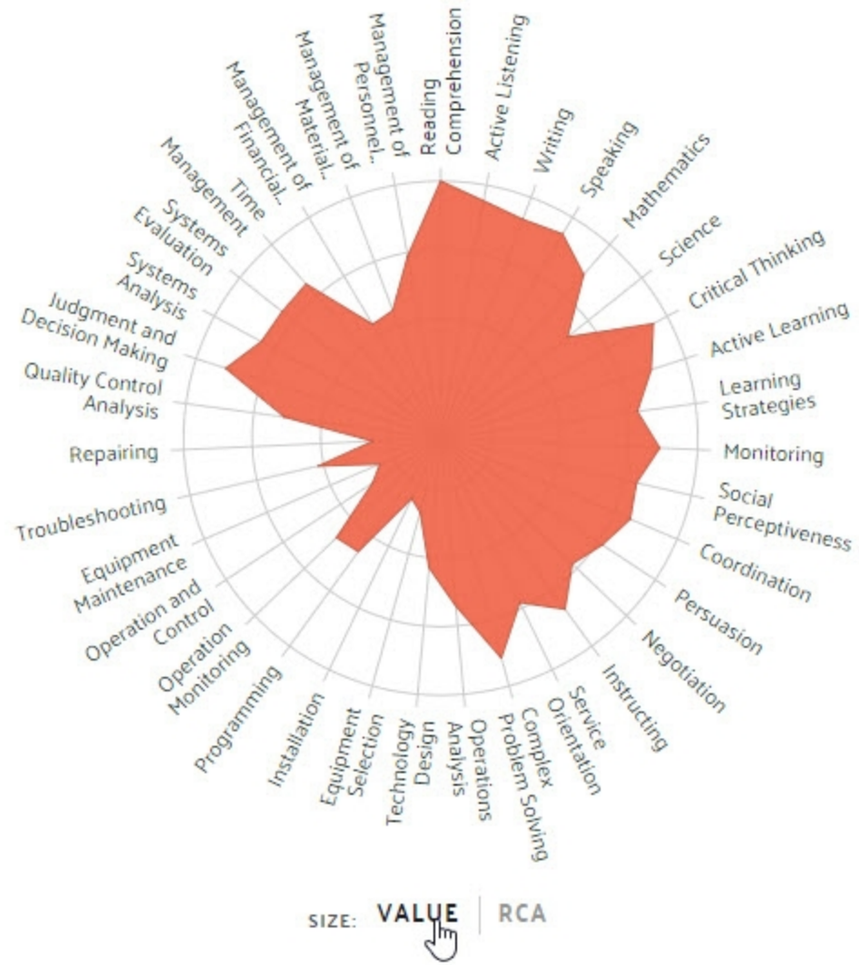
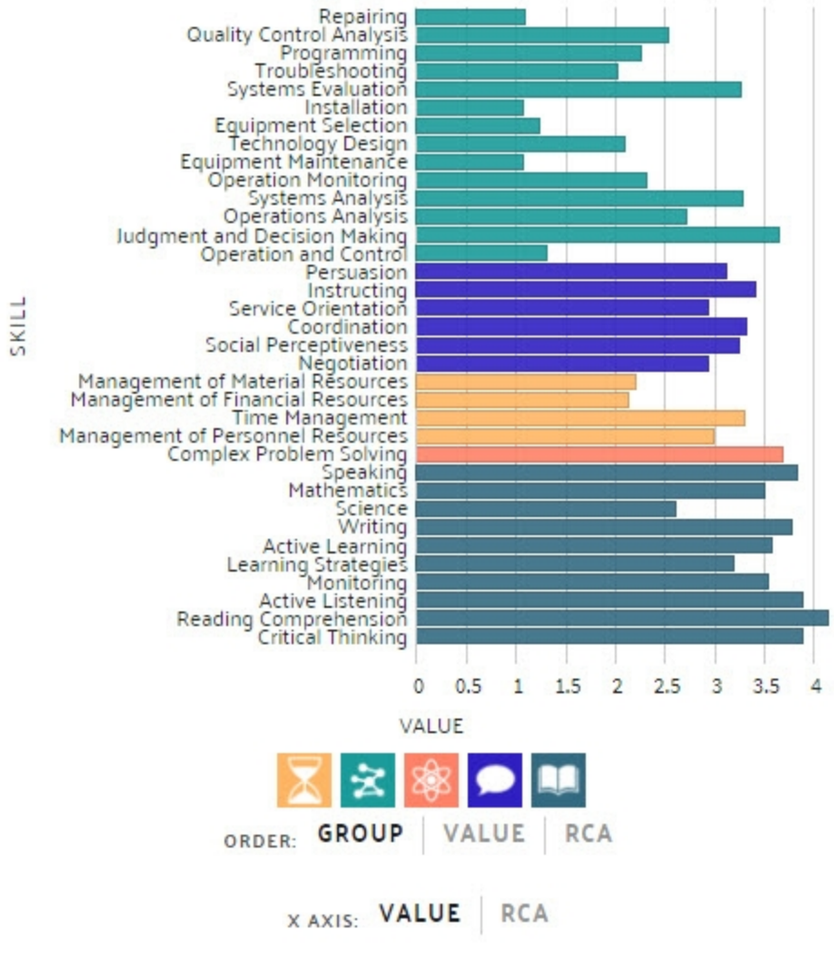
Radar Distribution



Dataset: O*NET

Source: Department of Labor

Bar Chart

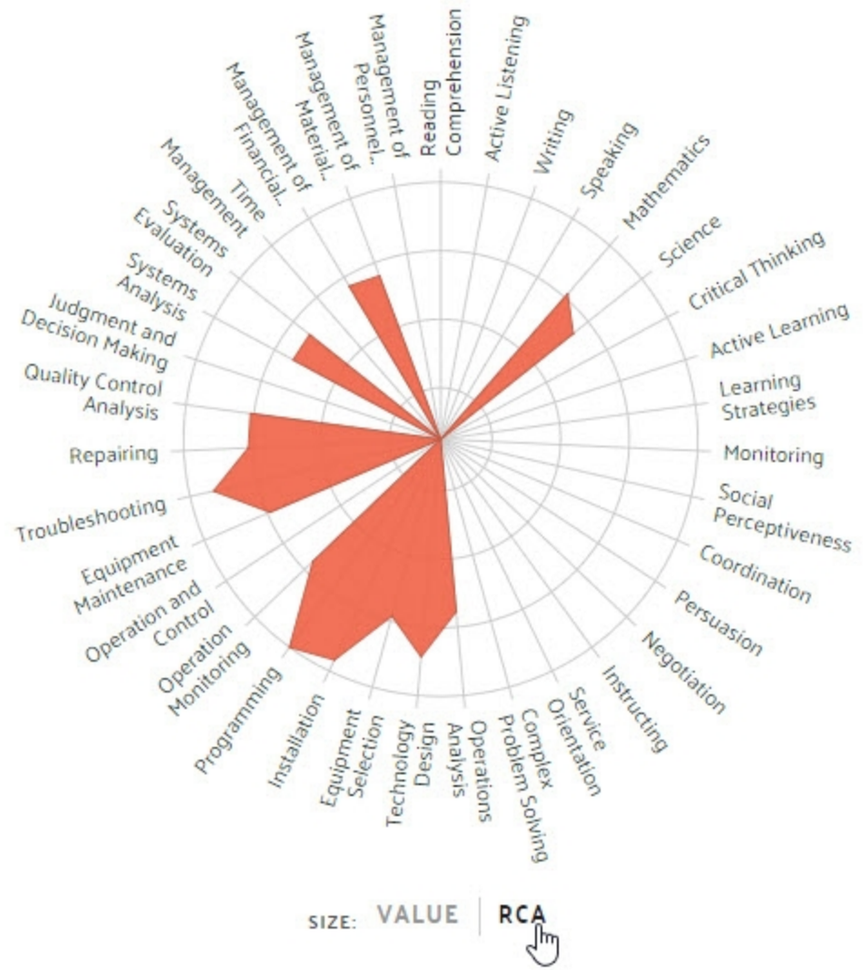


Toggle between "value" and "RCA" to see the absolute rating of how necessary the following skills(value) are for Computer Engineering majors and the revealed comparative advantage (RCA), or how much greater or lesser that skill's rating is than the average. The longer the bar or the closer the line comes to the circumference of the circle, the more important that skill is.

Computer Engineering majors need many skills, but most especially Reading Comprehension. The revealed comparative advantage (RCA) shows that Computer Engineering majors need more than the average amount of Programming, Installation, and Troubleshooting.

Programming is very distinctive for majors, but the Reading Comprehension, Critical Thinking, and Active Listening are the three most important skills for people in the field.

Radar Distribution



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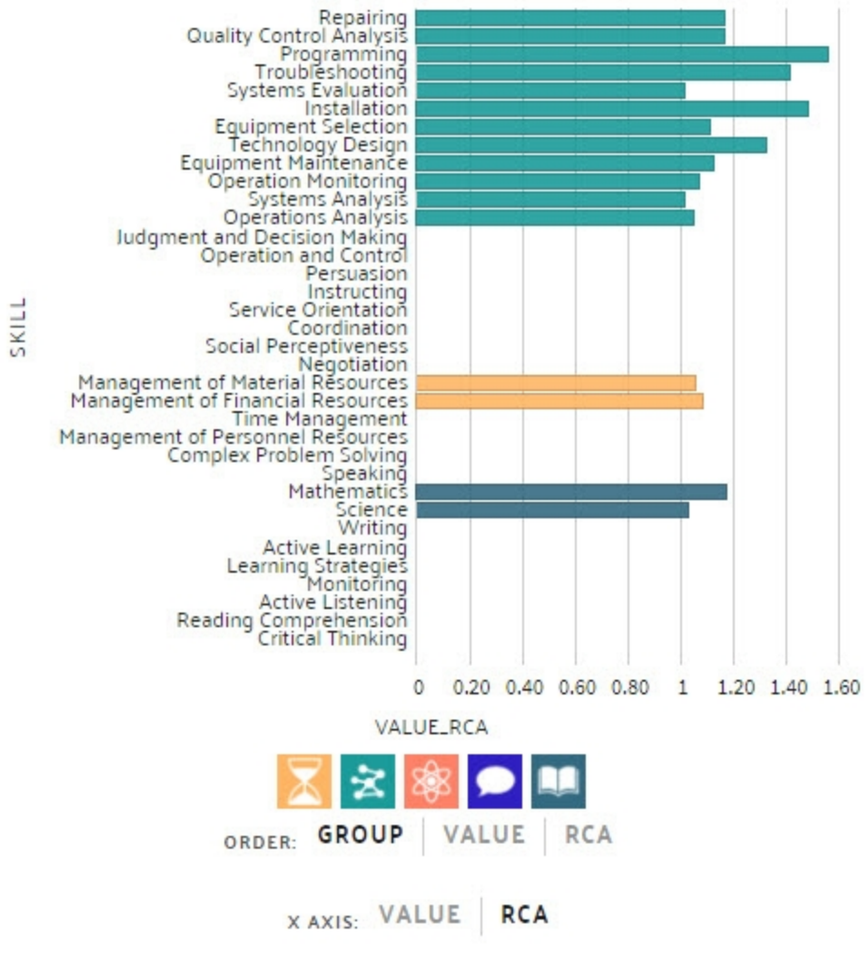
Bar Chart



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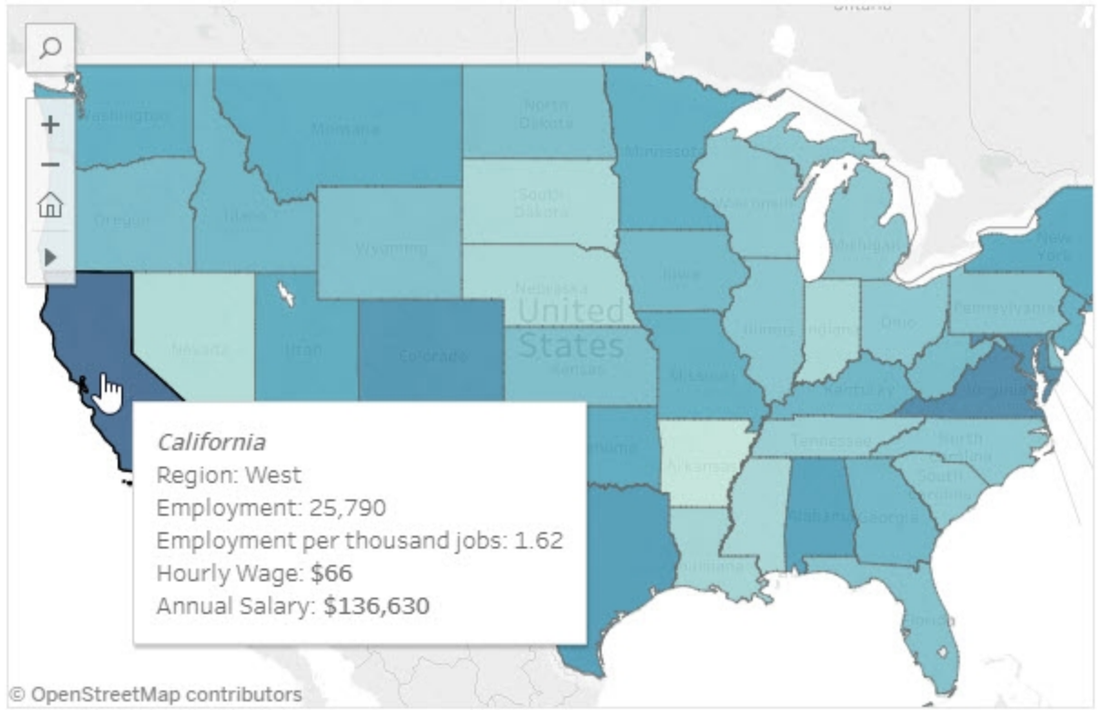
When student hover over mouse on each state they will get the employment, hourly wage and salary information for their desire program



Top 6 Paying States for this occupation

6

	Hourly Wage	Annual Salary
California	$66	$136,630
New Hampshire	$64	$132,580
Alaska	$61	$127,130
Virginia	$58	$121,330
Maryland	$57	$118,390
Colorado	$56	$115,750

TOTAL DEGREES AWARDED IN 2015
11,349
GROWING 14.2%

MEDIAN IN-STATE PUBLIC TUITION
$7,632
GROWING 6.89%

MEDIAN OUT-OF-STATE PRIVATE TUITION
$38,583
GROWING 0.08%

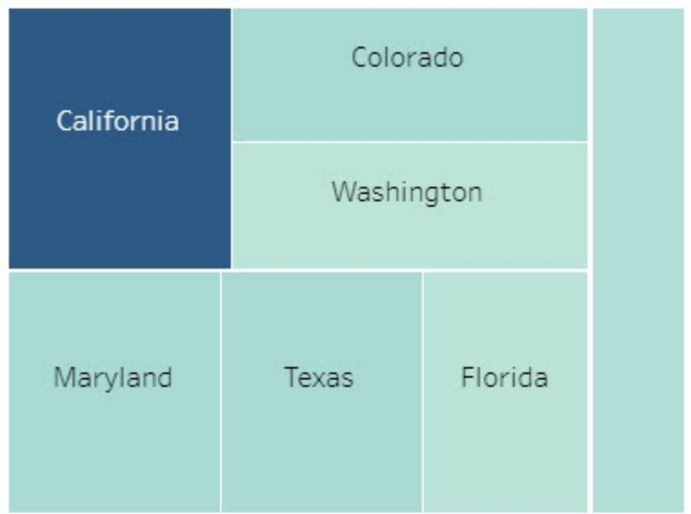
AVERAGE WAGE
$105,264
GROWING 3.44%

PEOPLE IN WORKFORCE
3.95M
GROWING 4.13%

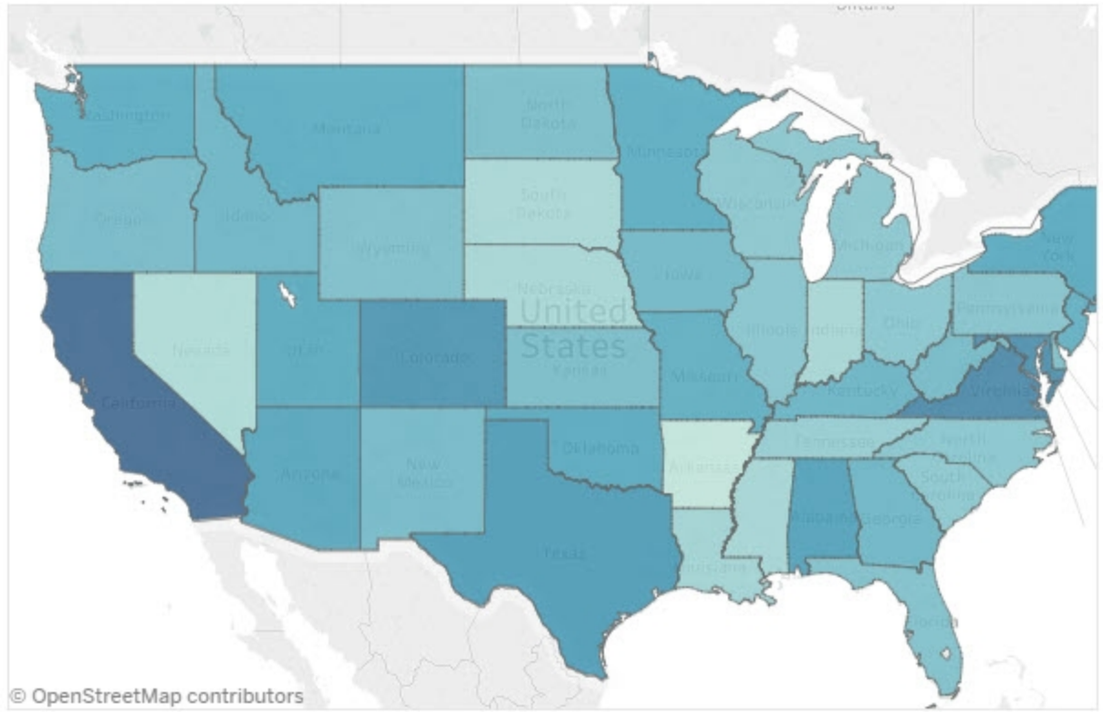
AVERAGE EMPLOYEE AGE
43.6
DECLINING -0.16%

Top 7 States with the highest employment level

7



They can find top paying states for the occupation



Top 10 Paying States for this occupation

User define number

10

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Colorado	$56	$115,750
Massachusetts	$54	$111,720
Texas	$54	$111,720
District of Columbia	$54	$111,610
Alabama	$53	$109,320

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11,349
GROWING 14.2%

MEDIAN IN-STATE PUBLIC TUITION
$7,632
GROWING 6.89%

MEDIAN OUT-OF-STATE PRIVATE TUITION
$38,583
GROWING 0.08%

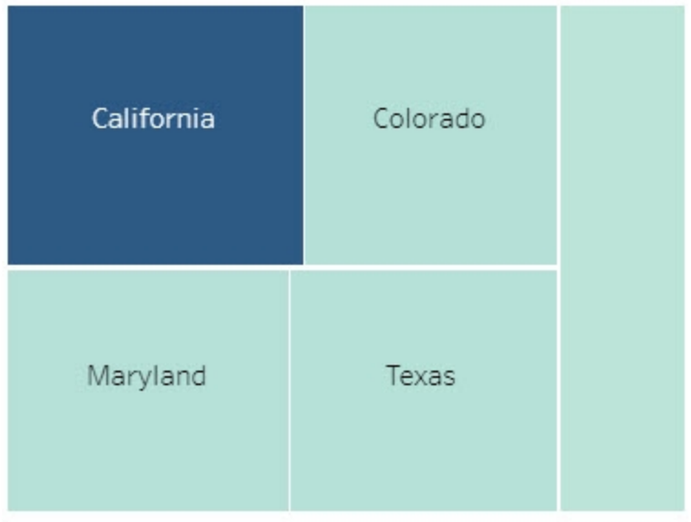
AVERAGE WAGE
$105,264
GROWING 3.44%

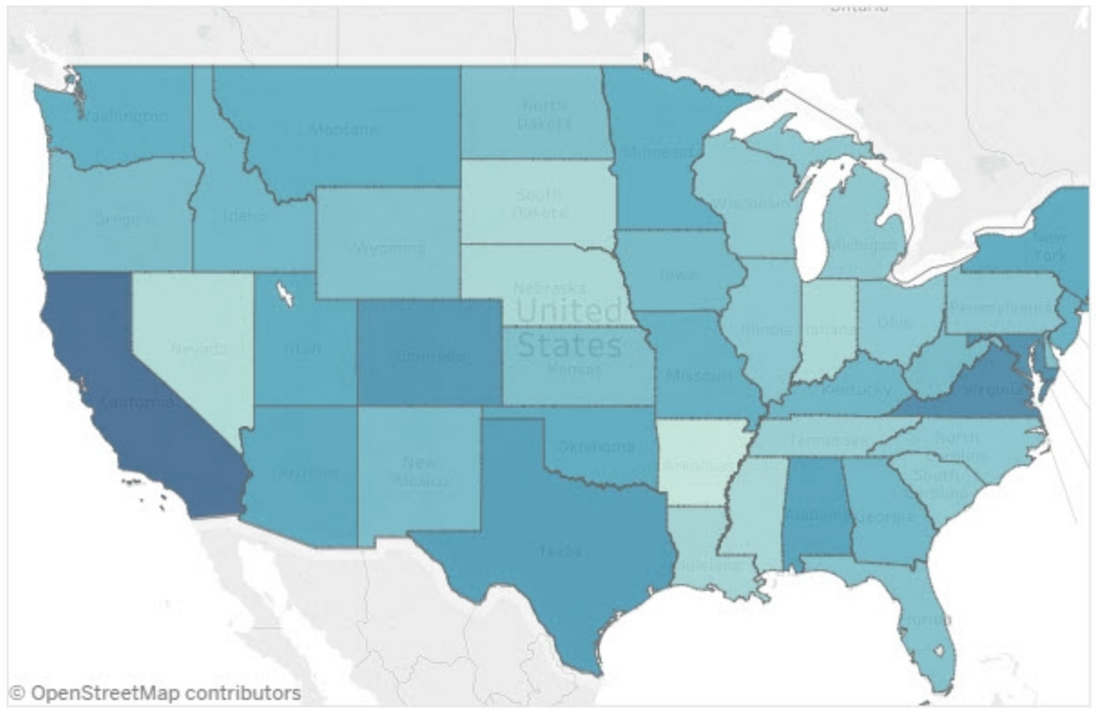
PEOPLE IN WORKFORCE
3.95M
GROWING 4.13%

AVERAGE EMPLOYEE AGE
43.6
DECLINING -0.16%

Top 5 States with the highest employment level

5





Top 10 Paying States for this occupation

10

	Hourly Wage	Annual Salary
California	$66	$136,630
New Hampshire	$64	$132,580
Alaska	$61	$127,130
Virginia	$58	$121,330
Maryland	$57	$118,390
Colorado	$56	$115,750
Massachusetts	$54	$111,720
Texas	$54	$111,720
District of Columbia	$54	$111,610
Alabama	$53	$109,320

TOTAL DEGREES AWARDED IN 2015
11,349
GROWING 14.2%

MEDIAN IN-STATE PUBLIC TUITION
$7,632
GROWING 6.89%

MEDIAN OUT-OF-STATE PRIVATE TUITION
$38,583
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AVERAGE EMPLOYEE AGE
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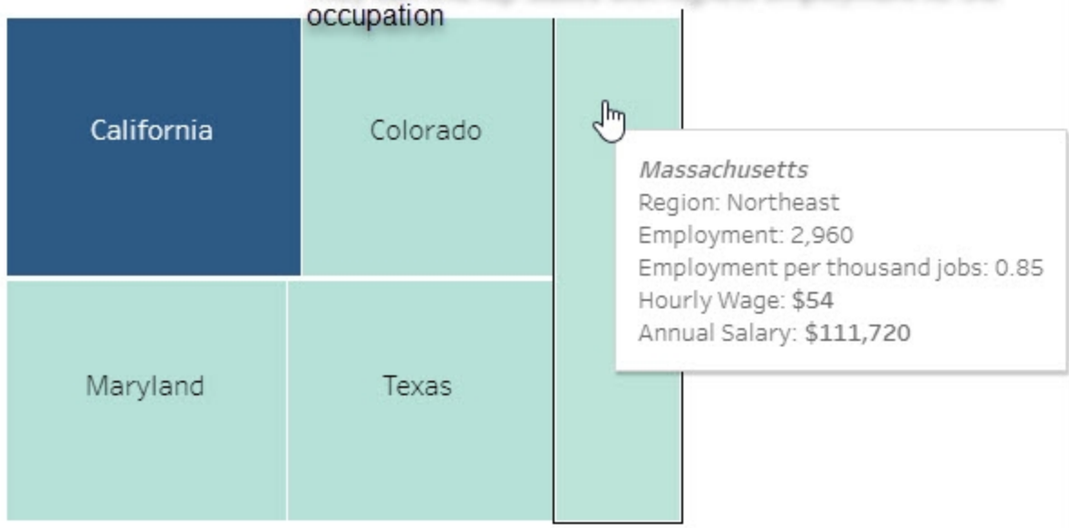
Top 5 States with the highest employment level

5

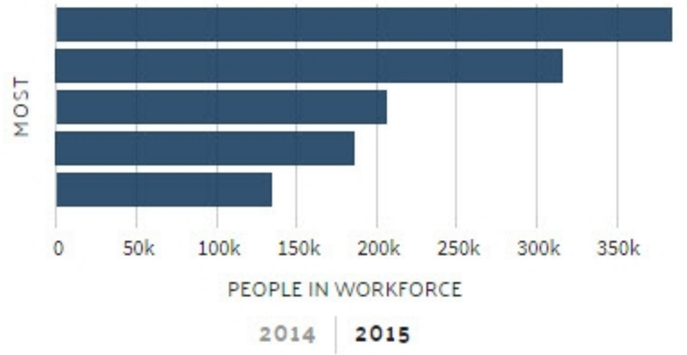
User can change this number

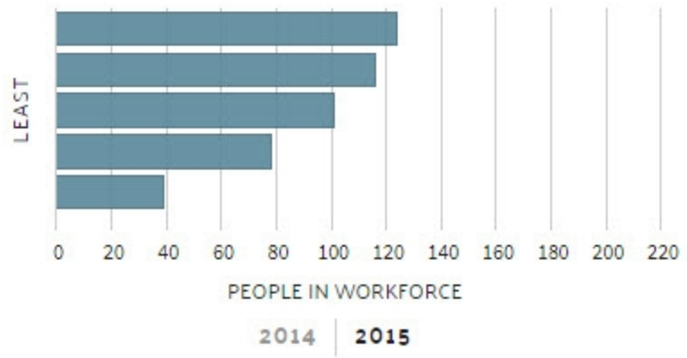
They can find top states with highest employment for the occupation



Most Common

The most common industries that employ Engineering majors, by number of employees, are Architectural, engineering & related services;Computer Systems Design; and Construction

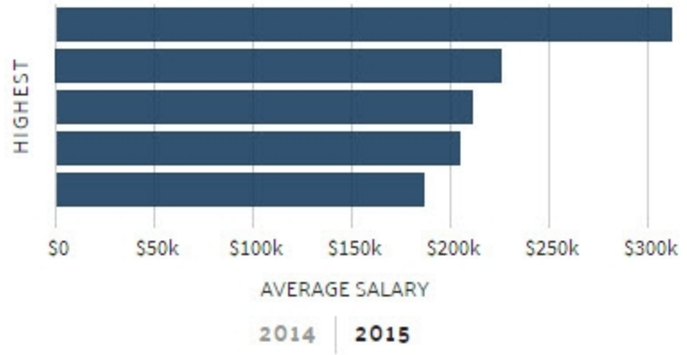


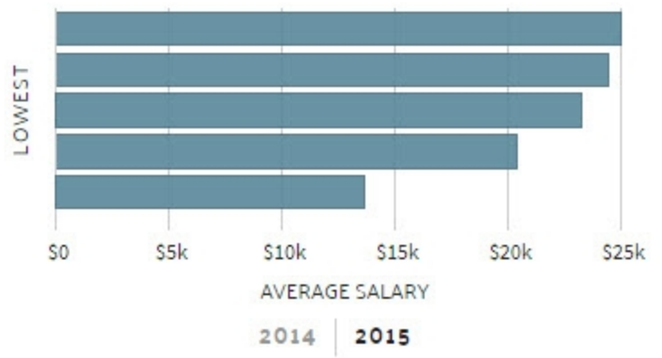


Dataset: ACS PUMS 1-year Estimate
Source: Census Bureau

Highest Paid

The highest paying industries of Engineering majors, by average wage, are Farm supplies merchant wholesalers; Oil & gas extraction; andElectronic auctions.

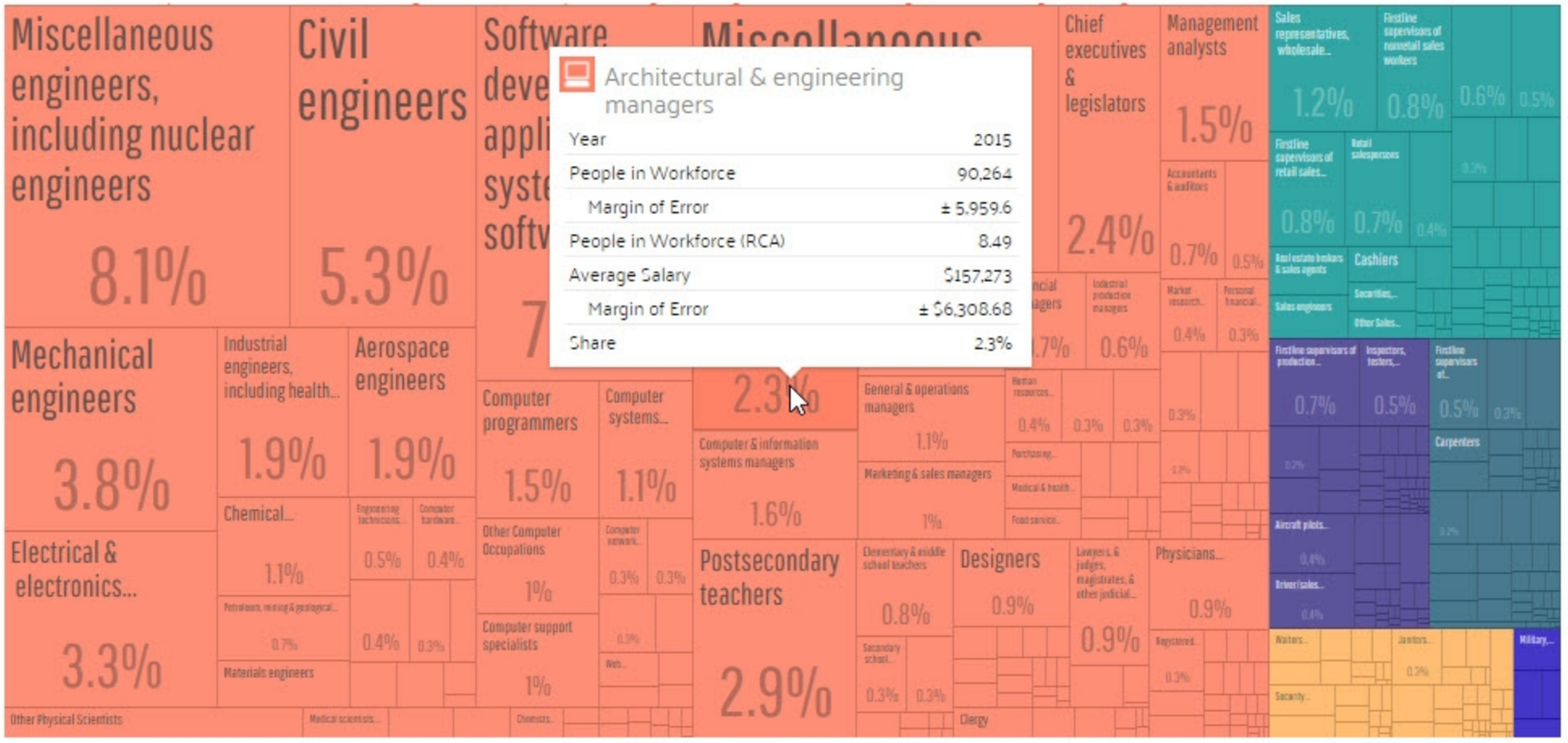




Dataset: ACS PUMS 1-year Estimate
Source: Census Bureau

Occupation by Share

Hover over mouse in each occupation will give the necessary information



2014 | 2015

data for different year

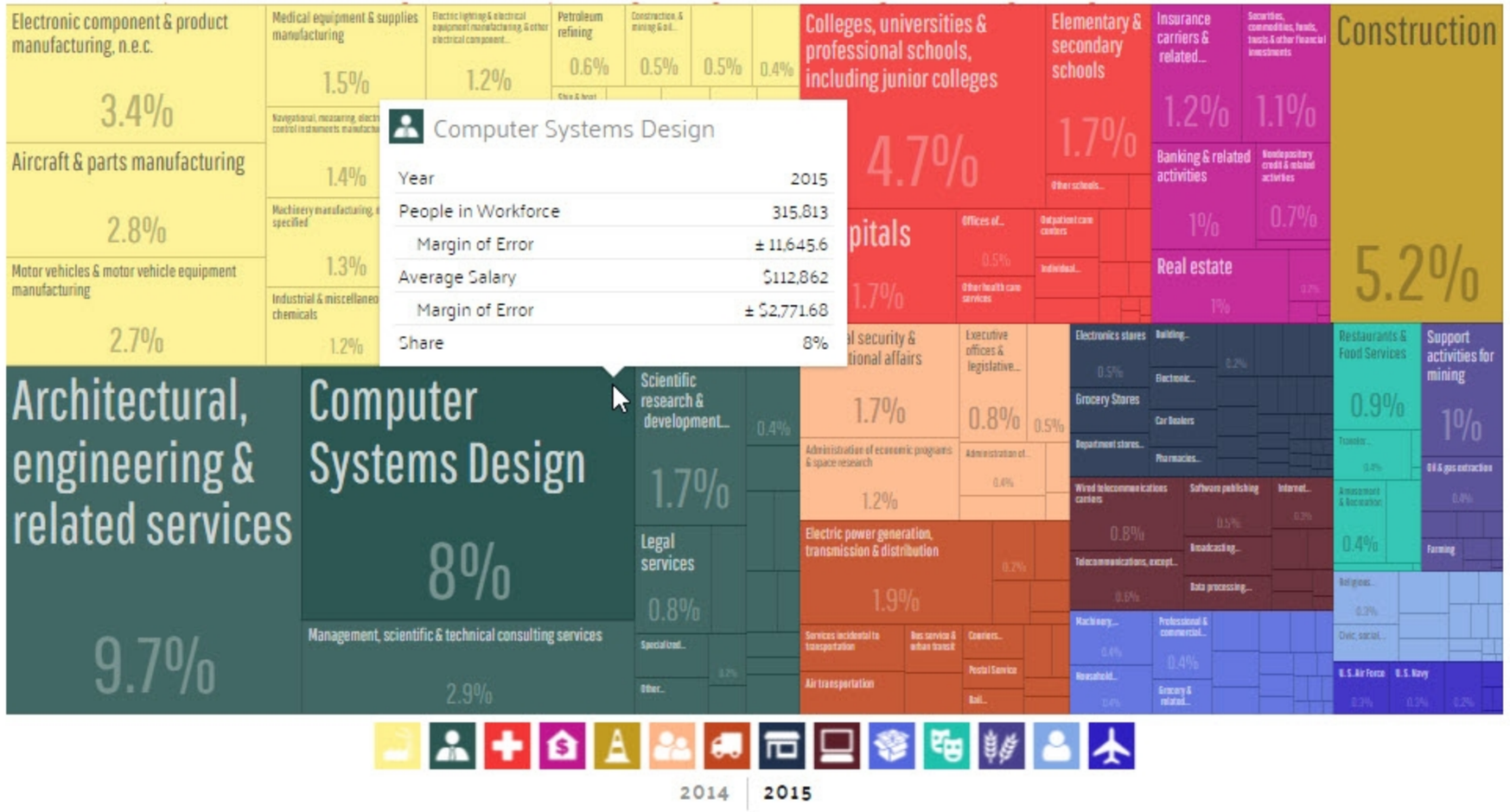
Dataset: ACS PUMS 1-year Estimate
Source: Census Bureau

3.95M
2015 WORKFORCE
± 43,306

4.13%
1 YEAR GROWTH
± 1.14%

The number of Engineering graduates in the workforce has been growing at a rate of 4.13%, from 3.79M in 2014 to 3.95M in 2015.
The largest single share of Engineering graduates go on to work as Miscellaneous managers (8.56%). This chart shows the various jobs filled by those with a major in Engineering by share of the total number of graduates.

Industries by Share



Dataset: ACS PUMS 1-year Estimate
Source: Census Bureau

3.95M
2015 WORKFORCE
± 43,306

4.13%
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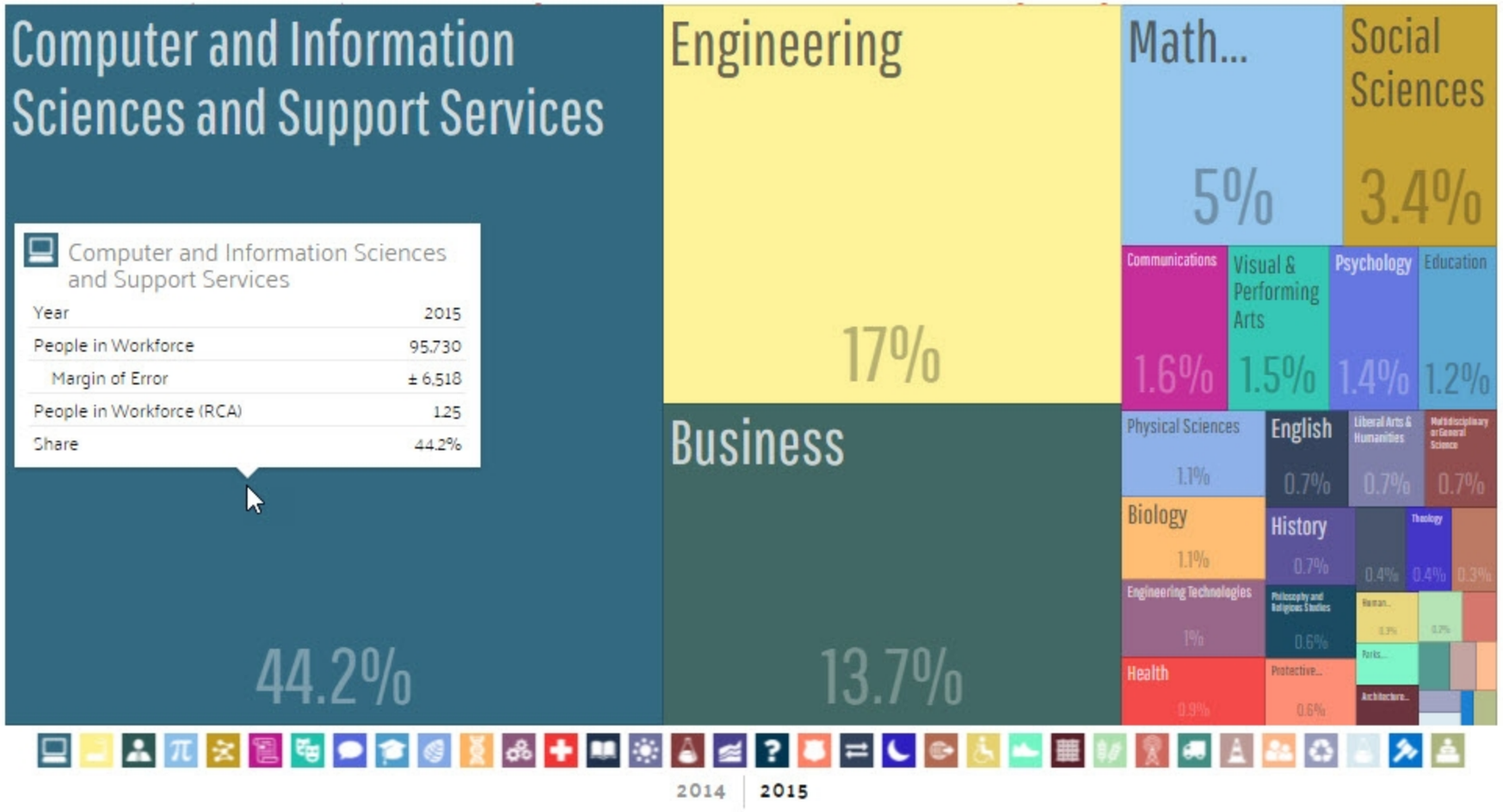
The number of Engineering graduates in the workforce has been growing at a rate of 4.13%, from 3.79M in 2014 to 3.95M in 2015. The industry which employs the most Engineering graduates by share is Architectural, engineering & related services, followed by Computer Systems Design. This visualization shows the industries that hire those who major in Engineering.

Majors



Dataset: ACS PUMS 1-year Estimate

Source: Census Bureau

MOST COMMON MAJORS

1. Computer And Information Sciences And Support Services
2. Engineering
3. Business

MOST SPECIALIZED MAJORS

1. Human Sciences
2. Library Science
3. Legal

Data on higher education choices for Computer programmers from The Department of Education and Census Bureau. The most common major for Computer programmers is Computer and Information Sciences and Support Services but a relatively high number of Computer programmers hold a major in Human Sciences.