Low-Hanging Fruit: Improving Click Revenue
The Unsupervised Learners

Our goal is to improve click revenue by noticing which industries and locations get more clicks. Having noticed the number of clicks per day exponentially decreases the longer the job is online and that 50% of jobs are taken off the site by day 20, we restrict our analysis to the first 20 days of a job post. We focus only on U.S. industries with more than 1000 job postings. We then develop a popularity score to capture how many more clicks a job post got each day on the site compared to the average number of clicks a post gets on that day. For example, on day t *(1 - 20)*, the popularity score would be: ***Score(t) = clicks this job generated on day t - average clicks for all jobs on day t***. The total score for this job would be the cumulative score that it received within the 20-day period is **Total_score = Sum(*Score(t)*)** where t = 1 to 20. To get an industry's popularity score, we simply took the average score over all jobs listed on Indeed.com under that industry. In this manner, we assess each industry's popularity, or revenue-generating potential, as compared to a baseline average.

Our analysis indicates the "most popular" jobs come from administration, media, medinfo, warehouse, and transport (displayed in green on the bar chart on slide 2). Conservatively estimating $0.50 generated per click (Indeed notes on their website that posts generate between $0.25 - $5 per click), we see that these industries generate on average between $331 and $401 per post. We then compared these results to the popularity of the top five industries with the most job postings, shown in red on the bar chart. Interestingly, these industries all had below average popularity scores. Each one got significantly lower clicks per post on average than the top five "most popular" jobs (alpha = 0.05, Bonferroni adjusted); thus generating less revenue per post at only $113 to $187 per post on average. Our recommendation to Indeed is therefore to recruit companies from the top 5 most popular sectors and encourage them to post jobs. Additionally, Indeed can post advertisements for the most represented industries. However, it is possible that the top 5 most prevalent industries are less popular because the market is oversaturated with too many jobs. In this case, Indeed should focus more on recruiting jobs from the more popular industries.

The management sector has the most job listings on Indeed.com, so we used this industry as an example in a second pipeline to demonstrate regional trend. This process tells Indeed in which management job locations draw more clicks and which locations need more advertisement. We defined a city's **click index** as the total clicks from this city divided by the total job postings from this city. We did this for all cities with at least 2000 management job postings and visualize the citywise click index on the U.S map in slide 3. The key takeaway for Indeed is that cities like San Jose, Omaha, Madison and Dayton have a great number of management job postings yet an unsatisfactory click rate. These are the regions with lots of click potential and thus exactly where Indeed should direct advertising efforts. Finally, this analysis is a reproducible template that can be used for all other industries. We believe through our metric and visualization, Indeed can make insightful regional business decisions to improve click revenue.