Data Science Challenge

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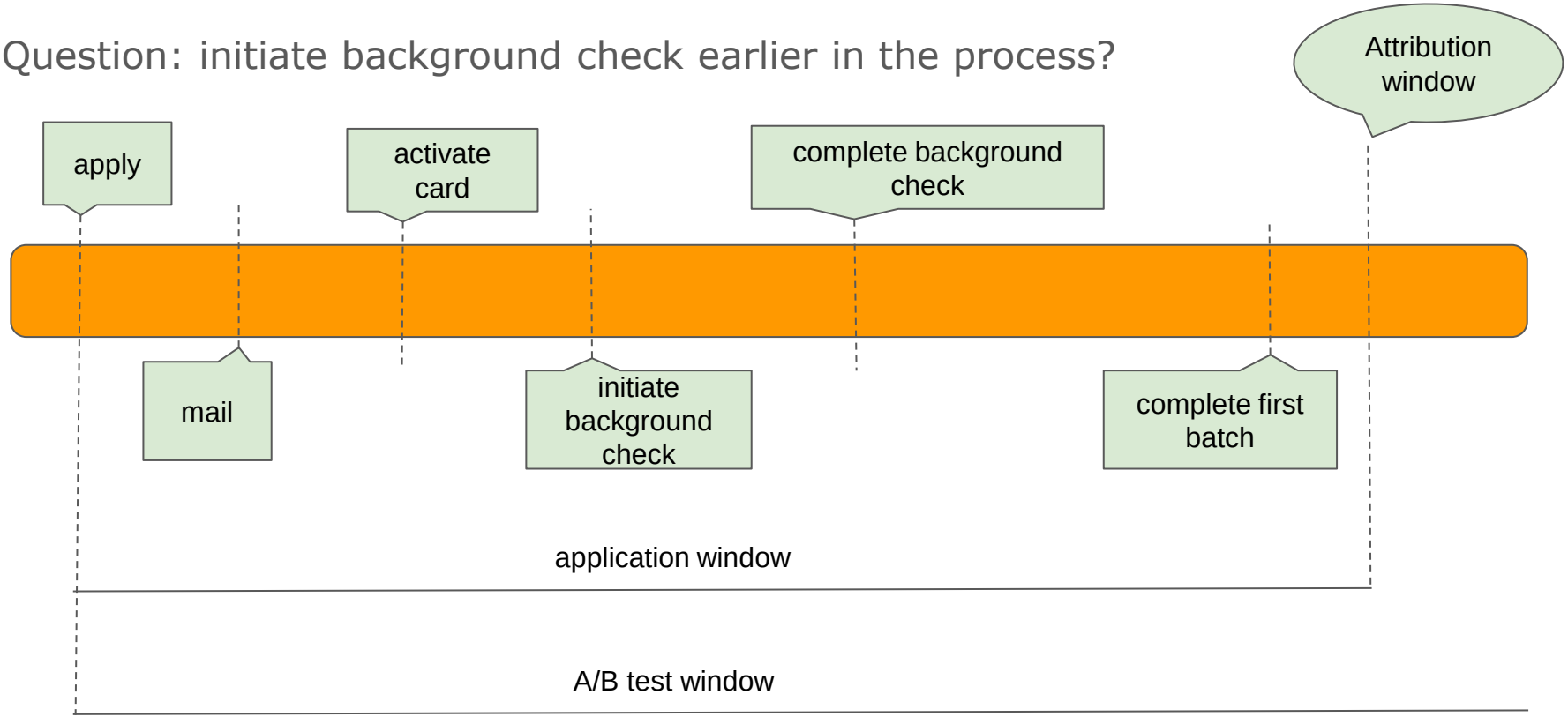
Shopper hiring process sequence

Question: initiate background check earlier in the process?



Q1: Evaluate A/B test result

Initiating background check earlier would increase conversion rate?

Group	# of applicants	# of completed first batch	conversion rate
Control	10798	2873	26.6%
Treatment	5357	2471	46.1%
Conclusion			Conversion rate significantly increased (z-score = 24.3)

Q2: Cost-effective?

We are using the *total dollars spent for applicants*, and # of completed first batch to evaluate cost-effective.

Since the cost is generated once the background check is initiated, the best strategy is to use the # of initiated background check and multiply the $30 cost to find out the *total dollars spent for applicants*, and then use this value to divide the # of completed first batch in order to determine whether this treatment is cost-effective.

Group	***total dollars spent for applicants*** ***(# of people initiated background check * $30)***	**# of completed first batch**	**Dollar efficiency** **(average cost per first batch completion)**
Control	10836 * 30 = $325,080	2873	$113.2
Treatment	7197 * 30 = $215,910	2471	$87.4
Conclusion			Control group cost more for completing each batch. Therefore, the treatment is cost-effective.

Q3: Observation

The overall conversion rate increased after initiating the background check earlier in the process; the conversion rate for social media channel insignificantly improved, while the conversion rate for job search site significantly improved.

Overall : 19%

control

Channel	social-media	job-search-site	web-search-engine	shopper-referral-bonus
conversion rate	24%	12%	20%	21%

Overall : 34%

treatment

Channel	social-media	job-search-site	web-search-engine	shopper-referral-bonus
conversion rate	31%	32%	37%	36%

Recommendation:

- To perform A/B Test to evaluate if mandatory orientation would improve the conversion rate

- The conversion rate in job search site channel is lower than average for both groups:
  If this channel has paid advertising involved, we should evaluate the ROI, which cost is channel acquisition cost + $30 background fee, etc. to check if the additional cost associated with job search site is an effective way to attract potential shoppers

group	Conversion rate (job search site)	overall
control	12%	19%
treatment	32%	34%

instacart