**A/B Test Design**

**Test Groups:**

Control : Book an appointment

Test : On demand counseling

**Success Metric:**

Conversion rate

**Hypothesis:**

Null Hypothesis : Control group has the higher conversion rate

Alternate Hypothesis : Test group has the higher conversion rate

**Design:**

As per the given case, due to time and bandwidth constraint we have to make a choice between the two models. We will conduct an A/B test for a week and analyze the data to decide which model has the higher conversion rate. We show each visitor of the website only 1 of the 2 models at random and follow their sales cycle and conversion rate. We will try to reject the null hypothesis. If we can statistically reject the null hypothesis then, we will adopt the on demand counseling model, if we can’t reject the null hypothesis, we will adopt the book an appointment model.

**Assumptions:**

1. Only prospects coming through the website are considered for this test. We exclude any prospect through reference, seminars, etc. from this test. Entire traffic through website is diverted to this test assuming there is no risk. We assume the company has sufficient bandwidth to conduct the test.
2. We assume the monthly traffic volume as 50000. Through similarweb.com it was found that some of the company’s competitors have 50000 traffic volume and a bounce rate of around 80%.
3. In the given model 1000 visitors saw the control, i.e., book an appointment and 1000 saw the test i.e., on demand counseling.
4. Assuming more serious prospects will be the ones booking an appointment while the casual visitors showing interest or the prospects who are comparing offerings from different companies are more likely to go for the on demand model. A much higher percentage of control group are expected to make the appointment with their parents, who are important decision makers, compared to prospects opting for on demand. So, we assume 25% of the control group and 50 % of the test group will take action.
5. We assume 20% of the prospects from control group didn’t make the appointment by missing it or later deciding against it. Similarly, we assume 20% of the prospects from test group also were dropped due to wait time or other reasons.
6. We assume 50% of the control group and 70% of the test group to be dropped along the sales cycle due monetary or personal reasons, eligibility for the preferred college or country, lost to competitors, etc. The control group is expected to have more prospects who had planned to study abroad earlier, have better academic performance and financial plan to cover the associated costs.
7. According to dreamapply, between 2016 and 2018, only 38% of applications from Indian students were accepted by foreign universities and colleges and out of all the applications 43% came from academic counselling agencies. We assume that the application from agencies have 80% chance of acceptance. In this case, as control group may have students who had prepared for overseas studies earlier compared to test group, we assume 85% of prospects from control group and 75% of the test group are accepted.

**Analysis:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total traffic per month | Approx. weekly traffic  (~50000/5) | Bounce rate 80%  (10000\*0.2) | Split into 2 groups | Prospects who takes action | Prospects attending  The session | Retained prospects till application | Application accepted | Conversion Rate |
|  |  |  |  |  |  |  |  |  |
|  |  |  | (Control) | (0.25\*1000) | (0.8\*250) | (0.5\*200) | (0.85\*100) | (85/1000) |
|  |  |  | **1000** | **250** | **200** | **100** | **85** | **0.085** |
| **50000** | **10000** | **2000** |  |  |  |  |  |  |
|  |  |  | **1000** | **500** | **400** | **120** | **90** | **0.09** |
|  |  |  | (Test) | (0.5\*1000) | (0.2\*400) | (0.7\*400) | (0.75\*120) | (90/1000) |

**Conclusion:**

Conversion rate for Test group is 9% and that of the Control group is 8.5%. Since test group conversion rate is higher than the control group conversion rate we reject the null hypothesis and accept the alternate hypothesis. So, based on the A/B test, the better choice is to use the On demand counseling model.

We could also factor in the bandwidth of counselors, overhead costs, etc. to decide the model which is beyond the scope of this test.