Project Overview & Structure

Step One: Read Background Information about Company and Online Sales Associate Job
Please read background information about the company and the Online Sales Associate Job (i.e., Overview of the Company, Overview of Focal Job). You will find information about the fictitious company and Online Sales Associate job that has been created for the purposes of this project. This information represents a critical ingredient in your success. Contextual information about the company and focal job will help you diagnose and analyze problems and tasks, and ultimately provide useful recommendations to the company's executive team. Even though many of the tasks you will perform will involve *quantitative* analysis, the *qualitative* information found in these background sections may help you navigate potential ambiguities in the quantitative data and analytical findings.

Step Two: Review the Datasets
As is the case with many organizations, HR data is stored in different tables within the same or different databases, which means that you will need to apply some of your data management skills (e.g., joins/merges) throughout this project. Thus, as your second step, you will need to acquaint yourself with the different data files and then access them. Specifically, you will need to download the data files for this project to verify that you have access to them and that they contain the appropriate data. Here are the names of the *six* data files:
- *PersonalData.csv*
- *SurveyData.csv*
- *BenchmarkData.csv*
- *PerformanceData.csv*
- *TrainingData.csv*
- *SelectionValidationData.csv*
- *CompensationData.csv*

In addition, when completing each task, please review the variable definitions, which can be found in the section called Overview of Data Files & Variable Definition

Step Three: Complete Task 1 & Write Mini-Report
For the third step, complete Task 1, which is presented and described later in this document. The task should be treated as a stand-alone mini-report. That is, you will need to write a mini-report (approximately 2-3 pages including graphics/tables but longer is acceptable) for each task, along with any data visualizations and/or tables that you think might help communicate your findings to the executive team. Each mini-report should be written in a clear and professional manner. In general, you should consider/do the following when attempting to complete each task:
1. **Read** the instructions for a task and take note of what is being requested.
2. **Acquire** the data (i.e., read data into R).
3. **Manage** the data to prepare for analysis (e.g., join, filter).
4. **Analyze** the data using an appropriate analysis or analyses.
5. **Interpret** the findings in the context of background information/knowledge.
6. **Report** the findings and provide data-informed recommendations.
7. **Report** any issues that you consider to be ethically or legally concerning.
8. Carefully review the task instructions and the project rubric (see end of this document) for any other information that should be included in a particular task.

Overview of the Company

RECREATION *unlimited*

Mission Statement: At Recreation Unlimited, we put the customer first and provide unbeatable prices because everyone deserves to experience the great outdoors.

Five Core Values:
- *Friendliness:* No matter what, we keep on smiling.
- *Respect:* We treat employees like family and customers like friends.
- *Fairness:* Our goals of transparency and equity serve as our compass.
- *Inclusion:* Everyone deserves to play outside, and everyone deserves an outdoor family.
- *Sustainability:* We only have one Earth, so let's take care of it.

Recreation Unlimited is an up-and-coming and quickly growing online outdoor retailer similar to Backcountry (www.backcountry.com). The company was established in 2014 by two outdoor enthusiasts, and the headquarters are located in San Luis Obispo, California. As an online retailer, Recreation Unlimited depends heavily on the knowledge, skills, abilities, and other characteristics (KSAOs) of its Online Sales Associates. As such, the company understands the value of selecting, training, managing, and retaining effective Online Sales Associates. As of December 31, 2023, Recreation Unlimited employed 266 Online Sales Associates.

In an effort to make the company more competitive with Backcountry and REI, the executive team at Recreation Unlimited has been investing more time and resources into its Human Resources Department, specifically with the aim of selecting, training, managing, and retaining effective Online Sales Associates, as these are the employees who work most closely with customers. To that end, in January 2024, Recreation Unlimited poached your HR Analytics team from a competitor in order to develop better and more data-informed HRM systems and practices intended to improve the performance of Online Sales Associates.

Your HR Analytics team has been excited about the recent move to Recreation Unlimited, and with your "fresh eyes," you are eager to dive into the data and carefully evaluate the quality, legality, and ethicality of the existing HRM systems and practices. There is a lot of work to be done in a short amount of time (~6 weeks), and the executive team has shared a list of tasks in need of immediate attention by people with your skill sets. All the relevant data have already been collected or queried from the HR information system, but because you did not collect the data yourselves, they may not be of the quality and relevance that you would hope.

Overview of Focal Job

Job Title: Online Sales Associate

Job Category: JC12

Overview: The Online Sales Associate interacts with customers exclusively through virtual means (i.e., WebChat, email) with the primary goals of selling outdoor recreation products, explaining and describing how to use products, and generally creating an educational and pleasant customer experience.

Key Tasks, Duties, & Responsibilities [ranked in order of descending criticality, as ranked by subject matter experts]:
- Explain outdoor recreation products and describe their uses and applications.
- Confer with customers through virtual means (i.e., WebChat, email) to provide information about products or services.
- Retain records of customer interactions, transactions, and actions taken.
- Recommend improvements to products or packaging.
- Solicit sales of outdoor recreation products.
- Resolve customer complaints and concerns and escalate to supervisor when appropriate.
- Follow-up with customers who expressed disappointment or frustration with a product or the customer-service experience.

Knowledge, Skills, Abilities, & Other Characteristics [ranked in order of descending criticality, as ranked by subject matter experts]:
- Knowledge of outdoor recreation products
- Extraversion
- Active listening skills
- Reading comprehension skills
- Written comprehension skills
- General interpersonal skills
- Sales persuasion skills
- Customer service skills
- Conflict management skills
- Knowledge of web-based technologies

Physical Requirements:
- Ability to sit or stand in front of a computer for 8 hours/day
- Ability to see computer screen or to listen to text using text-to-speech technology

Minimum Qualifications:
- High school diploma or equivalent

Preferred Qualifications:
- Bachelor's degree in outdoor recreation or business administration

Overview of Data Files & Variable Definitions

You have the following datasets at your disposal. Each task section provides detailed information regarding what information the executive team would like for you to report and/or question(s) to answer using the available data. Variable definitions by data file are provided below.

- ***PersonalData.csv*** [Contains demographic and personal data for Online Sales Associates who were employed by Recreation Unlimited as of December 31, 2023]
  - EmployeeID *(unique employee identifier)*
  - UnitID *(unique unit identifier)*
  - SupervisorID *(unique supervisor identifier)*
  - JobCategoryID *(unique job category identifier)*
  - JobCategory *(name of job category)*
  - GenderIdentity *(employee self-reported gender identity)*
  - RaceEthnicity *(employee self-reported race/ethnicity)*
  - AgeYears *(employee age in years since birth)*
  - AgeCategory *(employee age categorized such that Under40 = "employee is under 40 years of age and Over40 = "employee is over 40 years of age")*
  - Education *(employee highest level of education attained)*
  - Veteran *(employee veteran status: Yes = veteran, No = not a veteran)*
  - Disability *(employee disclosed disability: Yes = reported disability, No = no reported disability)*
  - TenureYears *(employee job tenure [i.e., length of service] in years)*
- ***CompensationData.csv*** [Contains compensation data for Online Sales Associates as of December 31, 2023]
  - EmployeeID *(unique employee identifier)*
  - BasePay (Annual base pay in US $ for Online Sales Associates, assuming 2,080 work hours/year)
  - BonusPay (Annual bonus pay earned in US $ for Online Sales Associates, which is tied to sales revenue generated)
- ***PerformanceData.csv*** [Contains annual performance (criterion) data as of December 31, 2023 for Online Sales Associates]
  - EmployeeID *(unique employee identifier)*
  - BARS *(behavioral anchored rating scale; consists of three performance dimensions: sales behaviors, administrative behaviors, and organizational citizenship behaviors; direct supervisor rated employee on the three dimensions using a 5-point scale, with a rating of 1 indicating that the employee has performed below expectations and a rating of 5 indicating that the employee has exceeded performance expectations; each variable score is an overall composite/scale score based on the average of ratings on the three dimensions; can be considered a behavioral, subjective indicator of performance, and thus a criterion for a criterion-related validity study)*
  - Sales *(annual sales revenue generated by employee in US $; can be considered a results-based, objective indicator of performance, and thus a criterion for a criterion-related validity study)*

- ***SelectionValidationData.csv*** [Contains scores from Online Sales Associates on newly developed selection tools; data were collected from November 2 to November 12, 2023]
    - EmployeeID *(unique employee identifier)*
    - Interview *(structured interview tool designed to assess persuasion skills, conflict management skills, and general interpersonal skills; consists of 5 behavioral interview questions and 5 situational interview questions; administered and scored by hiring manager using standardized 7-point rating scale, where 1 indicates a low level of proficiency and 7 indicates a high level of proficiency; each variable score is an overall composite/scale score based on average of ratings on the 10 questions)*
    - Extraversion *(personality test designed to assess Big 5 dimension called extraversion; consists of 10 items; each item self-rated by the individual using a 5-point rating scale, where 1 = Strongly Disagree and 5 = Strongly Agree; each variable score is an overall composite/scale score based on average of self-ratings on the 10 questions; higher scores indicate higher extraversion)*
    - PhysAbility *(ability of individual to lift 40-pound bag of sand above head; 1 = pass, 0 = fail)*
    - WorkSample *(work sample tool designed to assess skills related reading comprehension, written comprehension, persuasion skills, and conflict management skills; individual rated by untrained rater using twenty 10-point rating scales, where 1 indicates low proficiency and 10 indicates high proficiency; each variable score is an overall composite/scale score based on average of 20 ratings)*
- ***SurveyData.csv*** [Contains survey-response data for 2023 Annual Employee Survey, which was administered between July 1 and July 7, 2023; employee respondents rated each of the job satisfaction, engagement, and turnover intentions items using a 5-point Likert-type scale, where *1 = Strongly Disagree, 2 = Disagree, 3 = Neither Disagree nor Agree, 4 = Agree,* and *5 = Strongly Agree*]
    - EmployeeID *(self-reported unique employee identifier)*
    - JS1 *(job satisfaction item 1: "In general, I enjoy my job.")*
    - JS2 *(job satisfaction item 2: "I feel invigorated by my job.")*
    - JS3 *(job satisfaction item 3: "Overall, I am satisfied with my job.")*
    - JS4 *(job satisfaction item 4: "In general, I enjoy completing my assigned tasks.")*
    - Eng1 *(engagement item 1: "I feel personally driven to do my job.")*
    - Eng2 *(engagement item 2: "I feel engaged at work.")*
    - Eng3 *(engagement item 3: "I feel motivated to complete my duties at work.")*
    - TI1 *(turnover intentions item 1: "I am seriously considering quitting my job.")*
    - TI2 *(turnover intentions item 2: "During the next 12 months, I will probably look for a new job outside of Recreation Unlimited.")*
    - TI3 *(turnover intentions item 3: "I don't like working at Recreation Unlimited.")*
- ***BenchmarkData.csv*** [Contains survey-response data pulled on December 32, 2023 for competitor organizations that administered the benchmark survey items during the 2023 calendar year; respondents rated each of the job satisfaction, engagement, and turnover intentions items using a 5-point Likert-type scale, where *1 = Strongly Disagree, 2 = Disagree, 3 = Neither Disagree nor Agree, 4 = Agree,* and *5 = Strongly Agree*]

- o JS1 *(job satisfaction item 1: "In general, I enjoy my job.")*
- o JS2 *(job satisfaction item 2: "I feel invigorated by my job.")*
- o JS3 *(job satisfaction item 3: "Overall, I am satisfied with my job.")*
- o JS4 *(job satisfaction item 4: "In general, I enjoy completing my assigned tasks.")*
- o Eng1 *(engagement item 1: "I feel personally driven to do my job.")*
- o Eng2 *(engagement item 2: "I feel engaged at work.")*
- o Eng3 *(engagement item 3: "I feel motivated to complete my duties at work.")*
- o TI1 *(turnover intentions item 1: "I am seriously considering quitting my job.")*
- o TI2 *(turnover intentions item 2: "During the next 12 months, I will probably look for a new job outside of [ORGANIZATION NAME].")*
- o TI3 *(turnover intentions item 3: "I don't like working at [ORGANIZATION NAME].")*
- ● ***TrainingData.csv*** [Contains training evaluation data from a post-test-only with control group design; from January 2023 to September 2023, new Online Sales Associates were randomly assigned to either the old training program (control) or the new training program (treatment) until 31 individuals had participated in the old training program and 31 individuals had participated in the new training program]
  - o EmployeeID *(unique employee identifier)*
  - o group *(group/condition to which trainees were randomly assigned; NewTraining = new training program [treatment group], OldTraining = old training program [control group])*
  - o communication *(sum of correct responses to 250 questions designed to assess professional communication knowledge and skills, where each correct response is equal to 1 point; higher scores indicate higher proficiency; administered 1-month post training)*
  - o grammar_spelling *(sum of correct responses to 250 questions designed to assess grammar, syntax, and spelling knowledge and skills, where each correct response is equal to 1 point; higher scores indicate higher grammar, syntax, and spelling proficiency; administered 1-month post training)*
  - o customer_satisfaction *(average customer satisfaction rating received by each trainee over the 6 months following the training; customer satisfaction ratings can range from 1 to 10, with 1 indicating very dissatisfied and 10 indicating very satisfied)*

Task 1: Annual Employee Survey

Like many organizations, Recreation Unlimited conducts annual surveys to assess employees' job attitudes. Each July, Recreation Unlimited invites employees to participate in the annual survey by sending out a link in a company-wide email. It is important to note that your team did *not* design this survey; rather; Recreation Unlimited purchased access to the 2023 annual survey measures and associated items from a vendor, and the vendor provides benchmark data on the survey items. Further, your team did *not* send out the company-wide email and did not export the data from Qualtrics; rather, the corporate communications team distributed the official company- wide email on July 1, 2023 (see below), and someone from IT exported the data from Qualtrics and reportedly filtered out those responses from non-Online Sales Associates. The survey was open for a one-week period beginning on July 1, 2023, and survey response data were saved in a file called *SurveyData.csv*. All these steps took place prior to your team's arrival at Recreation Unlimited. Unfortunately, as a side note, you do not have access to any of the survey-response data from previous years, as a new employee accidentally deleted all previous survey data sometime during 2022. On that note, click here to view the 2023 survey.

From: CommunicationsTeam@recreationunlimited.com
To: *[anonymous]*
Date: Wed, July 1, 2023 at 10:00 AM

Subject: You're Invited to Participate in the 2023 Annual Employee Survey!

Greetings!

It's been a couple of challenging years! We know this year has so far been exceptionally challenging due to continued economic issues related to the Covid-19 global pandemic. Further, Recreation Unlimited has been working tirelessly over the past two-and-a-half years to form a Diversity, Equity, & Inclusion board and to address systemic racism and other forms of oppression in our organization and our communities. We truly want to understand how things are going with your work and your job and request your participation in this survey.

Please respond as truthfully and honestly as possible, and please remember that your responses will be kept completely anonymous, which means we won't be able to link your survey responses back to you.

Click here to fill out the survey!

Kind regards,

Communications Team
CommunicationsTeam@recreationunlimited.com
Recreation Unlimited

Unlike previous versions of the survey, the annual survey for 2023 includes a four-item measure of *job satisfaction*, three-item measure of *engagement*, and three-item measure of *turnover intentions*; previously these concepts were measured using single-item measures. The organization purchased access to the 2023 annual survey measures and associated items so that it could access benchmark data from competitor organizations. Employees responded to survey items using the following 5-point Likert-type agreement scale: *1 = Strongly Disagree, 2 = Disagree, 3 = Neither Disagree nor Agree, 4 = Agree,* and *5 = Strongly Agree*.

Job Satisfaction
Conceptual definition: "An employee's evaluation of their job and associated work."
Items and variable names:

- In general, I enjoy my job. *(JS1)*
- I feel invigorated by my job. *(JS2)*
- Overall, I am satisfied with my job. *(JS3)*
- In general, I enjoy completing my assigned tasks. *(JS4)*

Engagement
Conceptual definition: "The extent to which an employee feels energized at work and motivated to complete tasks, duties, and responsibilities."
Items and variable names:

- I feel personally driven to do my job. *(Eng1)*
- I feel engaged at work. *(Eng2)*
- I feel motivated to complete my duties at work. *(Eng3)*

Turnover Intentions
Conceptual definition: "An employee's thoughts of leaving the organization."
Items and variable names:

- I am seriously considering quitting my job. *(TI1)*
- During the next 12 months, I will probably look for a new job outside of Recreation Unlimited. *(TI2)*
- I don't like working at Recreation Unlimited. *(TI3)*

As noted above, Recreation Unlimited purchased access to the 2023 annual survey measures and associated items from a vendor. In doing so, Recreation Unlimited can access benchmark data from competitor organizations. In total, 23 competitor organizations (with a total of 20,103 employees' who responded to the survey items) shared their de-identified survey data with the vendor, and the vendor reported the means across the 23 competitor organizations in the data file called *BenchmarkData.csv*.

NOTE: Make sure that your code includes understandable annotations.
Executives at Recreation Unlimited have requested that your team:

- Report a list of the employee IDs for those employees who responded with *Strongly Agree* (5) to the following item: "During the next 12 months, I will probably look for a new job outside of Recreation Unlimited." (TI2).

- Report information about the internal consistency reliabilities (Cronbach's alphas) of each of the multi-item survey measures; explain and justify which items you selected to create a composite variable (i.e., overall scale score variable) for each of the multi-item measures. The executives would like you to report which items you removed from each measure (if any) prior to creating a composite variable (i.e., overall scale score variable). Moreover, they would like for you to justify those decisions by referencing Cronbach's alphas and the actual item content (see survey items above or in link to online survey).
- Create composite variables (i.e., overall scale score variables) for the three multi-item survey measures (see above request/bullet for information regarding how to explain/justify which items to retain).
- Report and interpret *appropriate* measures of central tendency and dispersion for the three composite variables (based on their measurement scales) you created for the job satisfaction items, engagement items, and turnover intentions items.
- Compare Recreation Unlimited's survey responses to employees' responses from the 23 competitor organizations. The means across the 23 competitor organizations can be found in the data file called *BenchmarkData.csv*.
- Report the criterion-related validities of the job satisfaction, engagement, and turnover intentions composite variables. The behavioral anchored rating scale (*BARS*) and sales revenue generated (*Sales*) variables will serve as your two criterion variables, and they are saved in a file called *PerformancdData.csv*. Specifically, please estimate, interpret, and report <u>six</u> correlations involving the following combinations of variables:
    1. Job satisfaction composite variable & BARS scores *(BARS)*
    2. Job satisfaction composite variable & sales revenue generated *(Sales)*
    3. Engagement composite variable & BARS scores *(BARS)*
    4. Engagement composite variable & sales revenue generated *(Sales)*
    5. Turnover intentions composite variable & BARS scores *(BARS)*
    6. Turnover intentions composite variable & sales revenue generated *(Sales)*
- Make recommendations for the organization that are informed by your findings from the previous bullet points.
- Finally, for additional reporting guidance and requirements, be sure to refer to the <u>grading rubric</u> found at the end of this document.

Mini Report Grading Rubric

Audience: Imagine that your audience is a team of executives at the company who potentially know little about HR Analytics and Human Resource Management. At the same, take into consideration that one or more executives might be quite knowledgeable about HR Analytics and Human Resource Management. As such, try to communicate analytical findings using simple, understandable language but also by providing enough technical detail to satisfy the more knowledgeable executives. That is, please be sure to include technical information pertaining to your analyses and findings (e.g., type of analysis, significance level, effect size magnitude and sign) for each task in the corresponding mini-report; you can provide the more technical information in the narrative of the main text, within parentheses in the main text, or in tables within the mini-report itself.

General Formatting and Submission Guidelines
- Single- or double-spaced, or anything in between
- Size 12 font size (except footnotes, if used, can be smaller), Times New Roman.
- Use headings to convey structure.
- Proper grammar and syntax.
- Free of spelling errors and typos.
- Professional design and "look."
- PDF (.pdf) format.
- You are ***not*** authorized to use ChatGPT or other Large Language Models on this project; if I find that such a tool has been used in any way on this project, each member of your team will be reported to the university, and your team will receive a zero on this project.
- Plagiarism and other forms of academic dishonesty will *not* be tolerated and, if caught, each member of your team will be reported to the university, and your team will receive a zero on this project; I (your instructor) reserve the right to submit the paper to plagiarism software
- Approximately 2-3 pages, but it is okay if longer than 3 pages.
- Follow the directives given in the task description. Do not include R code/script within your mini-report; R code/script should be saved for the R Code section at the end of the paper.
- You have a great deal of freedom when it comes to writing the mini-report, but be sure to address/include the following in your write-up:
  - Provide a brief introduction to the task by describing the general purpose and context.
  - If you needed to perform any data management (e.g., join, filter), please state what steps you took.
  - State what analysis (or analyses) you used to answer each question or to complete each objective (e.g., multiple linear regression).
  - Interpret, explain, and generally tell a story about the data-analytic findings/results; when reporting statistical results, be sure to clearly state what analysis/metric you are referring to (e.g., mean, standard deviation) and include information about the sample size (e.g., $n = 98$) used for the analysis; further, when interpreting and communicating the results of an inferential statistical analysis (e.g., independent-samples t-test, correlation), specifically, include

information about sample size (e.g., $n = 98$) used for the analysis, the statistical test (e.g., $\bar{t} = 5.21$) and its statistical significance (e.g., $p = .04$), and if the test is statistically significant, include information about the practical significance (i.e., effect size) (e.g., $d = .81$); such technical information can be included directly in the narrative, parenthetically within the narrative, or in tables.

- o Recommend data-informed action(s) for deployment and implementation in the organization (including opportunities for improvement).
- o Report anything that you consider to be potential ethical, legal, data-security, or data-privacy issues; it's fine to say "no" to a request/objective from the executive team so long as you provide a rationale/explanation; if you do say "no" to a request/objective, then please do not write the code for or carry out that request/objective given that it has been deemed unethical, illegal, or counter to data-security and -privacy principles.
- o To help tell your story, consider providing graphics, tables, or other forms of data visualization to communicate findings – you are not limited to R when creating data visualizations.