QBUS5010 Assignment 1 - Exemplars

Statement of Problem

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FA-PS	CR-DI	HD
[FROM SUBMISSION 1] The Magicbricks website only contains the services they provide , the detailed houses available and the news. This report is aiming at providing necessary information that can be easily accessed by the targeted audience which is the potential investors in various field, with the data acquired from Magicbricks. Information will be programmed in a more well-designed way such as visualization graph and statistical tables, so that audience is able to extract useful and clear information out of the visualized data in an easiest way and hence make the better investment decision.	es might be directly related to unhealthy e Australian Bureau of Statistics (ABS) Survey shows that, for Australians aged 18 didn't consume the recommended ables, over 50% didn't consume the serves of fruit, and about 6.4% consumed aily (ABS, 2022). Food provides energy, onents that, if consumed in insufficient or to poor health. However, due to the lack of records and feedback from data visualization, some people are simply not aware that their eating habits are unhealthy. Therefore, having a dashboard that helps users record their intake of key nutrients throughout the day and monitor changes in weight and other health data would help users manage their health more effectively and reduce obesity rates in Australia. It has been noticed that many apps for weight management already exist. Most of them have the function of food calorie checking and weight recording, and some of them also provide the service of diet planning, such as MyFitnessPal. However, these apps only consider the calories of food, but not the nutritional elements of food when making diet plans for users. Moreover, the diet plans made by these apps are rather rigid and do not update the ideal recipe for the next meal in real-time according to the food that the user has consumed that day. So, I designed a dashboard to solve these problems.	[FROM SUBMISSION 3] Figures 1 and 2 show screenshots of the summary statistics and data tables on the IUCN Red List website. These focus on the total number of species assessed and the number of species categorised as threatened each year and are presented within a large volume of text. Although Figure 1 clearly shows historical trends, there is no option to interact with the data to identify individual yearly values. This figure also lacks a key message and is overly cluttered; it is unnecessary for the y-axis interval to be every 10,000; the gridlines visually compete with the data lines, and the reader is forced to link the data lines and the legend to understand the graph (which goes against the Gestalt principle of proximity) (Knaflic, 2015). Moreover, the IUCN Red List aims to "increase the number of species assessed to at least 160,000" (IUCN, 2022a). However, this information is not visually available but could be effectively presented as a future target with the data presented in Figures 1 and 2. Figure 2 shows a further breakdown of this information by year and major organism group. Presentation as a table makes it very difficult to identify trends and distinguish significant differences between groups and years. The IUCN Red List fails to effectively present their work, potentially leading to the misinterpretation of their efforts to increase the number of species assessed through poor data visualisation, a lack of clear messaging and no option to interact with (and further understand) the data. This may also result in failure to identify the most urgent areas for future research and could waste time and resources and reduce motivation to assess species. This issue could be reduced through a dashboard connected to the Red List website that aids with monitoring, communication and decision making.

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Objectives of the dashboard

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[FROM SUBMISSION 1] For the potential property investors, their knowledge needed before the investing might be the following: which certain city has the highest rent as per unit size of the house? What is the most correlated feature of a house that affect the rent price so that they know what type of houses to invest in. For furnishing company and furniture wholesalers, the critical problems that required to be addressed could be: Which city that has more unfurnished houses so that they can enter to take the market share?	[FROM SUBMISSION 2] The objective of the dashboard is to become personal online weight management and nutrition expert for users. By visualizing data on ges in health indicators such as weight, the with a visual understanding of their olans recipes based on the nutrient content s dashboard can also update the ideal sed on the food the user nificance of this function is that people g unhealthy only after they have ordered t is already too late to realize the mistake. to a restaurant and take pictures to record served, you realize that the meal is not at that point, it is impossible to reorder. This dashboard can plan the next meal for the user in advance so that they don't make mistakes when preparing or ordering food.	[FROM SUBMISSION 3] The main objectives of this dashboard are to significantly improve and expand the data visualisation available on the Red List website by: ● Providing a dashboard that presents the IUCN's data relating to the following data sets: ○ The total number of species assessed over time. ○ The number of species assessed as threatened over time. ○ The number of different species per organism group (vertebrates, invertebrates, plants and fungi) assessed over time. ○ The proportion of each organism group assessed as threatened over time. ○ The IUCN's goal of assessing 160,000 species and sub-organism group goals. ● Making the above data sets more accessible to users to further promote the goals of the IUCN's Red List and encourage users to continue with their efforts to assess species. ● Allowing users to interact with the data and further understand the numbers of species assessed and proportions of species assessed as threatened (if users want). This may help identify organism groups needing more assessment time and resources. ● Save time – rather than having to read through a large volume of text (as the IUCN Red List website is currently set out), users will be able to understand the key messages within the dashboard.

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Identification and description of audience

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[FROM SUBMISSION 1]
 	
As the leading agency company developed in India, the data they provide can be considered representative to some extents. Therefore investors in various field can utilize the this data to seek potential investment opportunity. For example, the data contains the furnishing status indicating that the house is fully furnished, semi-furnished or not furnished. Before the exploratory data analysis, by common sense, furnishing status could be one of the factors that affect the rent of the house, landlords could choose to provide better furnishing status to achieve a higher gain. The furnishing company or furniture wholesaler can make use of this data to look for the property owner who wants to furnish the house for renting for a higher price.
 	
In addition, property investor who wants to invest in the properties in India can also be the targeted audience of this project. According to The Economics Time, the rentals in the major cities has gone up 10% to 20% in 2022.(The Economics Time, 2022), regarding this trend, this growth in the house
 	
renting market in India can be attractive to those properties investors who are interested in making rental incomes, by looking at some of the critical indicators that were concluded from the data, they can have the pre-understanding of how the property renting market performs in the different cities in India. In addition, all graph will be updated on a regular basis so that users can track the information constantly.
	[FROM SUBMISSION 2]
	
	The target audiences of this dashboard are Australians between the ages of 15-50 who need weight loss and diet control. This segment is g mobile apps and is receptive to new ashboard to catch on among them. During d to manually enter their height and get weight. Then, Dashboard will call up e ideal nutritional intake for users. Before ly take a picture of the food and our nology to identify the type and grams of anually input the type of food and the ore accurate record of the diet. In addition, ly enter their daily weight. After obtaining ers, the dashboard will visualize the weight change and nutritional intake to help users better manage their weight. Through the dashboard, users can know how many nutrients and calories they have consumed in each meal and how many more they can consume that day, they can also prepare meals based on the dashboard's recommended recipes. This will prevent users from eating an unbalanced diet or eating too much.
		[FROM SUBMISSION 3]
		
		The data on the IUCN Red List website is available to a variety of different users. However, for this dashboard, the target audience is the Red List research partners, such as the Species Survival Commission, Bird Life International, Nature Serve and the Zoological Society of London (IUCN, 2022b). These organisations help the IUCN research and assess species for inclusion on the Red List and it is essential for them to have access to the numbers of species assessed, both as a whole and for each sub-group, in a concise and easily accessible manner. This would enable monitoring of species assessments and enable planning for resource allocation to organism groups that may lag in terms of numbers assessed. Table 1 identifies the audience's key characteristics and the implications for this dashboard.
		
		[TABLE 1 REPLICATED IN LIST FORMAT AND TRUNCATED]
		
		Table 1. Audience characteristics and the implications for this dashboard. Framework based on XXXX (20XX)
		
		• Role
		  ○ Scientific researchers make decisions relating to the species (within specific organism groups) to study and, therefore, allocate their time and resources. This requires knowledge of the number of species studied (per organism group) so [cont.]
		  ○ Therefore the dashboard must be structured so that it is easy and accessible for the researchers to identify the total species studied over time and at the present date, as well as the number of species studied per sub-group. The ultimate aim is to conserve species biodiversity; therefore, [cont.]
		• Workflow
		  ○ This information is likely to be used regularly (but not daily). This research is part of the regular work of research partners; therefore, users will have plenty of time to examine the figures. It is anticipated that this dashboard will be used on a computer (not a mobile device).
		  ○ Therefore it is crucial for the dashboard to be updated regularly. Although the researchers have time to examine the figures, the data needs to be accessible and easily deciphered. The dashboard should be configured for a standard computer screen.
		• Data comfort and skills
		  ○ The intended audience (researchers) is expected to be proficient in using and analysing data
		
		[Table 1 cont.]

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Description of necessary data/data source

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[FROM SUBMISSION 1]
 	
This dataset contains 4746 houses information available locating in 6 different cities in India, which are Kolkata, Mumbai, Bangalore, Delhi, Chennai and Hyderabad respectively, with 12 features of each house that can be manipulate with to generate useful information for the investors.
 	
`df.shape`
`(4746, 12)`
 	
`<class 'pandas.core.frame.DataFrame'>`
`RangeIndex: 4746 entries, 0 to 4745`
`Data columns (total 12 columns):`
` #  Column  Non-Null Count  Dtype`
`---  ------  --------------  -----`
` 0  Posted On  4746 non-null  object`
` 1  BHK  4746 non-null  int64`
` 2  Rent  4746 non-null  int64`
` 3  Size  4746 non-null  int64`
` 4  Floor  4746 non-null  object`
` 5  Area Type  4746 non-null  object`
` 6  Area Locality  4746 non-null  object`
` 7  City  4746 non-null  object`
` 8  Furnishing Status  4746 non-null  object`
` 9  Tenant Preferred  4746 non-null  object`
` 10  Bathroom  4746 non-null  int64`
` 11  Point of Contact  4746 non-null  object`
`dtypes: int64(4), object(8)`
`memory usage: 445.1+ KB`
	[FROM SUBMISSION 2]
	
	The dashboard will use several different datasets. The first one is the d by Food Standards Australia & New ntains information on the nutrient content of user takes a picture of the food, or of the food, the dashboard will look up the nutrient content of the food in this dataset. a input by the user, such as daily diet and stored in a separate database. In addition, e the recommended number of calories as well as the amount that can still be he real-time data entered by the users.
		[FROM SUBMISSION 4]
		
		A car sales dataset with the brand, body type, fuel type, and color information will be needed. The primary data source is the insurance company because all brand-new cars need insurance before getting on the road, and also the data contains basic vehicle information. This insurance dataset used for a prototype design is acquired from Audi China R&D department (Beijing) which contains brands, body type, color, segmentation, model, fuel type, and the corresponding sales volume from 2017 to 2021. However, the final version should connect to the database, thus the program can upgrade automatically.
		
		An additional data source is from online platforms such as 'Auto home' or 'Sina Auto'. A web crawler script is needed to fetch open-source data on large scale. Since most online platforms are using an anti-web crawler mechanism, some technical efforts are needed. For example, if Auto Home uploads some words in a picture format, the crawler program needs to include an extra OCR progress to cover all pictures into text. The 'selenium' plus 'pytesseract' package can solve this problem.
		
		Besides sales volume, a competitor's brand list is required to conduct a competitive study. Audi is a luxury brand and based on the market sales price, other brands whose prices fall into this range are considered a competitor. All sales prices can be acquired through online platforms.

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Explanation of necessary affordances/features

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[FROM SUBMISSION 5] The dashboard will: ● track cost per wear ● track dates of each wear ● keep a record of clothing sizes [FROM SUBMISSION 6] The selection box at the top is free to choose the time period that the audience wants. In the world map in the middle, viewers can freely choose the country or region they want to see. Then in the bottom chart box, the trend of the data of the country or region selected by the audience during the time period will be displayed. The world map will have different shades of color, representing more or less production in a specific time period in that country or region. The blank space is used to write various notes or place links to explain concepts. For audiences who do not know much about the relevant knowledge, they can use this section to answer their doubts.	[FROM SUBMISSION 2] There is a search bar on the dashboard, which allows users to enter their personal data. The first feature in this dashboard is a trend plot lot shows the change me and directly reflects the effectiveness of second feature is the calorie intake and raph consists of the sumption, the number of calories burned er of calories that can still be consumed users can clearly ories they have eaten at the moment, on that day, and whether they need to calories. The third feature is the ajor nutrients. This chart contains the number of carbohydrates, proteins, and fats that the user has consumed and the recommended intake for the day. Based on these charts, users can plan their nutrient ratios for each meal to prevent under or over-consumption of certain nutrients. The fourth feature is the food recommendation table. The dashboard will find the most suitable food from the food nutrient dataset based on the number of nutrients and total calories that the user still needs to consume and design the ideal recipe for the next meal. This recipe is updated in real-time based on the food the user has already eaten that day.	[FROM SUBMISSION 7] Explanation of necessary affordances/features *Table 2 - Dashboard Element Design (Public User Dashboard)* **Element** / **Affordance/Feature** / **Justification for design** A: 1. Text inputs from user; 2. Ability to search for car parks around different addresses/suburbs; 3. Dropdown list of recommended addresses are provided when inputs are partially spelt — A search box is created to produce a simplistic feeling of entering an address and getting a result – making the useability of this dashboard intuitive. Given that design across popular UI on apps such as Google Maps has search bars across the top left corner, the placement of the search bar in this dashboard has a similar position to offer familiarity to users. B: 1. Scrollable list of results generated when input is entered into Element A; 2. Box is highlighted when selected; 3. All similar searches will show basic information — Element B provides the user an opportunity to view the various options that are closest in similarity to their search inputs. Once a location is selected, the respective box is highlighted blue and the dashboard displays the relevant operational data. C: 1. Review rating provided through crowdsourcing; 2. Clicking on the stars will also allow the user to add a rating and a review — This function allows the dashboard to utilize crowdsourced data – increasing the reputation of the car park facility and increasing attractiveness to commuters. As it is not a major factor in influencing commuter decisions, it is a minor addition that does not take up much space in the dashboard. D: 1. Automatically generated information based on the selection of the car park location — Element D displays some of the most relevant information users are looking for when using this dashboard and thus takes up the most real estate. The titles and metrics displayed are kept short and concise to maintain a simplistic design. E: 1. Automatically generated features taken from the Car Park API — Separate box provided for features of the car park to specifically outline the benefits and limitations of the facility. F: 1. Automatically generated images taken from Google Maps and contributed by users; 2. By clicking on Element F, all other user posted images can be viewed and contributions can be made — The dashboard will display 2 images with the option to expand and view all posted images. This provides a brief view of what the park whilst utilizing limited dashboard space. G: 1. Users are given the option to select an hourly, daily or weekly view in the capacity graph. Upon clicking any bar, users will be able to view historical figures.; 2. The dotted outlined grey bars in the graph represent an average of historical capacity — Majority of commuters typically would like to see hourly or daily data and is thus reflected in the car capacity bar graph. Users are also given the opportunity to forecast for future capacities by utilizing historical figures. H: 1. Location is automatically given the user's location input; 2. An expansion button is provided on the minimap that relocates to the selected car park facility — A map has been added to the dashboard to allow the user to visualize the location and it's proximity to surrounding amenities such as public transport. This provides improved user experience as it is supporting material for the metrics shown in Element D.

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Draft design/layout (static wireframe mock-up, using a prototyping tool of your choice)

FA-PS	CB-DI	HD
[FROM SUBMISSION 6]	[FROM SUBMISSION 2]	[FROM SUBMISSION 7]

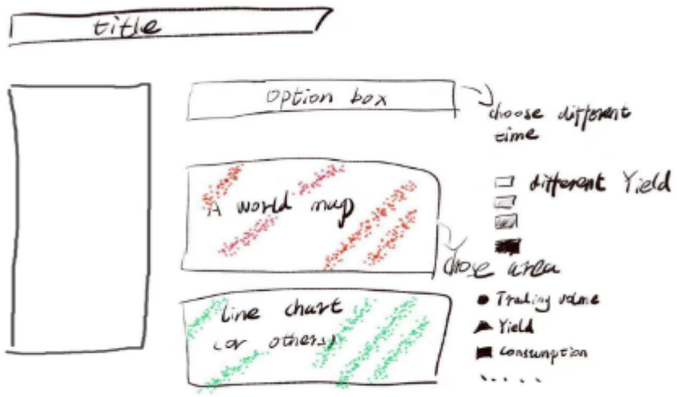

Figure 1 - Dashboard Mockup/Prototype - Public User Dashboard

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