AI For Business Leaders Course

Project Steps: Delivering an ML/AI Strategy

AI for Business Leaders
Project Step 2C

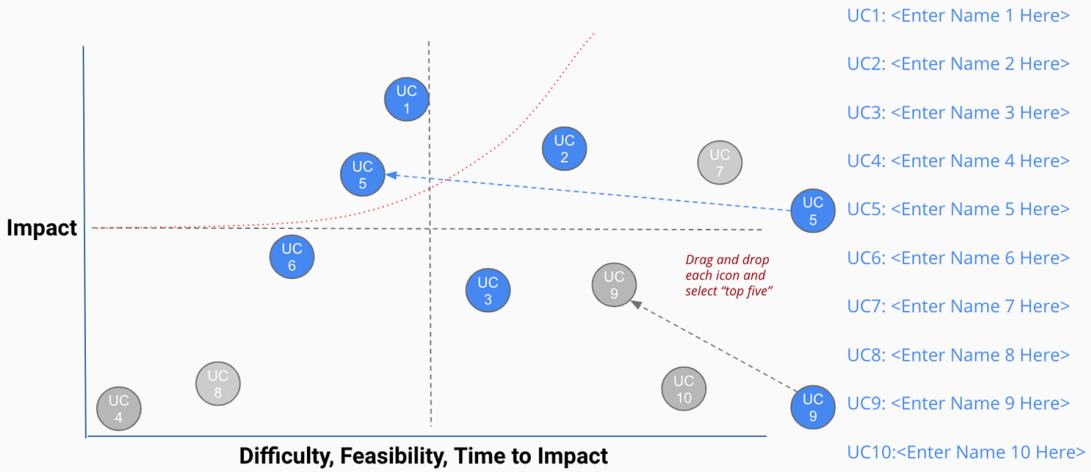
First Prioritization Grid

Your First Prioritization Grid

DIRECTIONS: For each of your use cases, review your answers to the 5V questions in Step 2A, and the operations you chose in Step 2B.

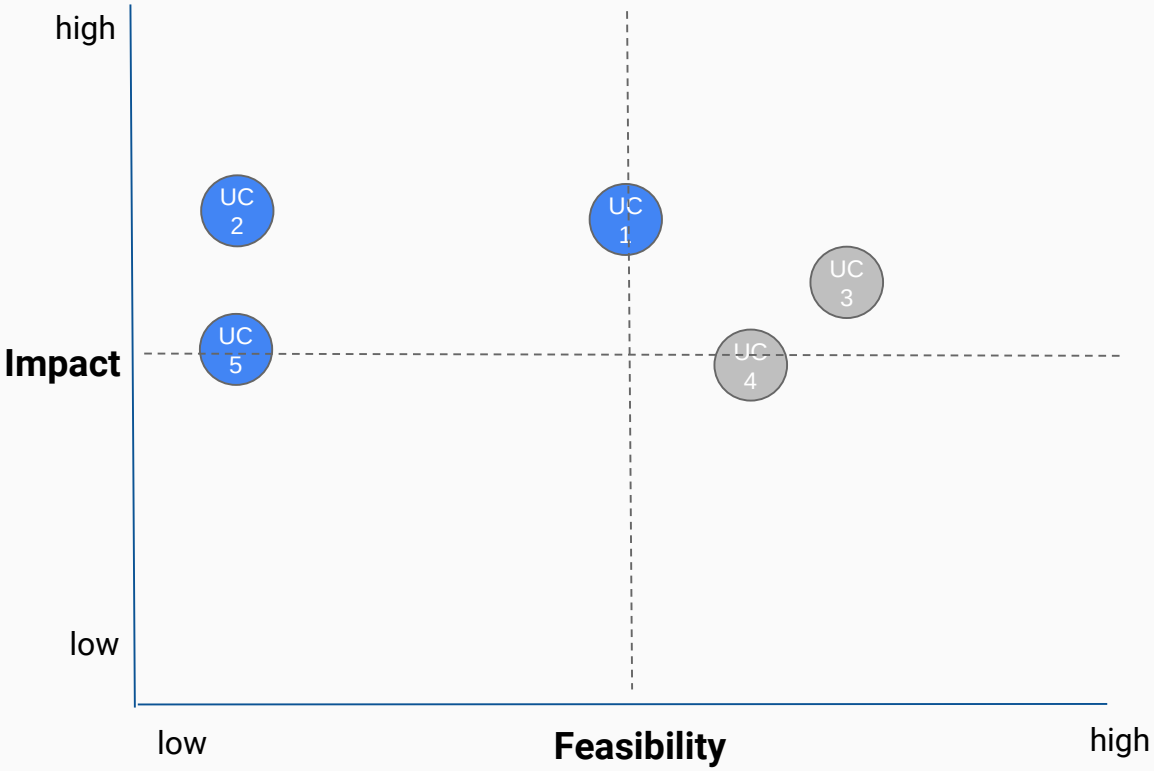
Then on the grid **on the next slide**, not this slide, move each blue use case icon to a place indicating how you see this use case's impact and feasibility.

(Recall that the upper left quadrant is usually the most desirable, as it indicates we expect less time and effort to achieve greater impact.)



- *Drag and drop icons* UC 2 *for each use case*
- *Remember to think about both axes!*

First Prioritization Grid
(Follow directions on previous slide)



UC1: Age Recognition

UC2: Gender Classification

UC3: Area Gender Prediction

UC4: Assistance Using NLP

UC5: Interviewing Using AI

Now Prioritize and Eliminate Three Use Cases

1) Review the locations of your use cases on the grid on the previous slide. Remember we want to prioritize use cases for AI and ML that offer the greatest impact for the least difficulty.

2) Now in the grid on the previous slide change the color from blue to grey for two use case circles you want to de-prioritize.

3) This leaves your top three use cases in blue that you want to move forward with in the rest of the project.

Nice work, you've completed Step 2C of the project!

AI for Business Leaders
Project Step 3

Architectures for Top 3 Use Cases

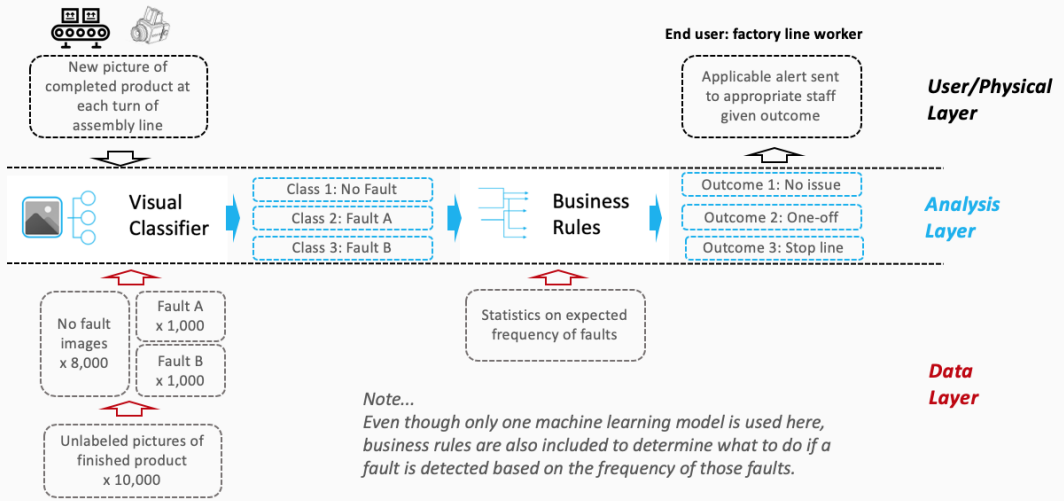
Creating High Level Architectures

For the top three use cases you prioritized in Project Step 2C, you'll now create a high level architecture for each.

For this step, be sure to review Lesson 3 but also recognize that this process allows significant creative freedom.

Keep a focus on…

- Data flow/direction
- Clear view on inputs/outputs
- Simplicity



- *Drag and drop capabilities*  *into Analysis Layer*
- *Identify relevant User/Physical and Data Layer attributes*
- *Use arrows*  *to show data flow, input/output*
- *Use annotations to help explain difficult concepts*

Your AI/ML Toolkit - List of Capabilities

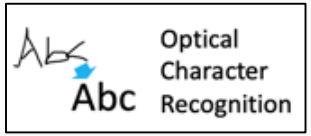
Generic ML Capabilities

Natural Language Processing

Voice/Speech Processing

Other Capabilities

Computer Vision



Drawing Tools

User/Physical Layer

Analysis Layer

Data Layer

Architecture 1/3 – Age Recognition

New Image of a pedestrian

Appropriate Ad

User/Physical Layer

Visual Classifier

Estimated Age

Classifier (Generic)

Class 1: Child

Class 2: Teenager

Class 3: Adult

Class 4: elderly

Business Rules

Analysis Layer

Images of people with representing diverse ages, genders, and ethnicities

Numeric Labeled data of different people with various ages

Data Layer

Architecture 2/3 – Gender Classification

New Image of a pedestrian

Appropriate Ad

User/Physical Layer

Visual Classifier

Class 1: Male

Class 2: Female

Class 3: Other

Business Rules

Option 1: Males Dominate

Option 2: Females Dominate

Option 3: Close Number

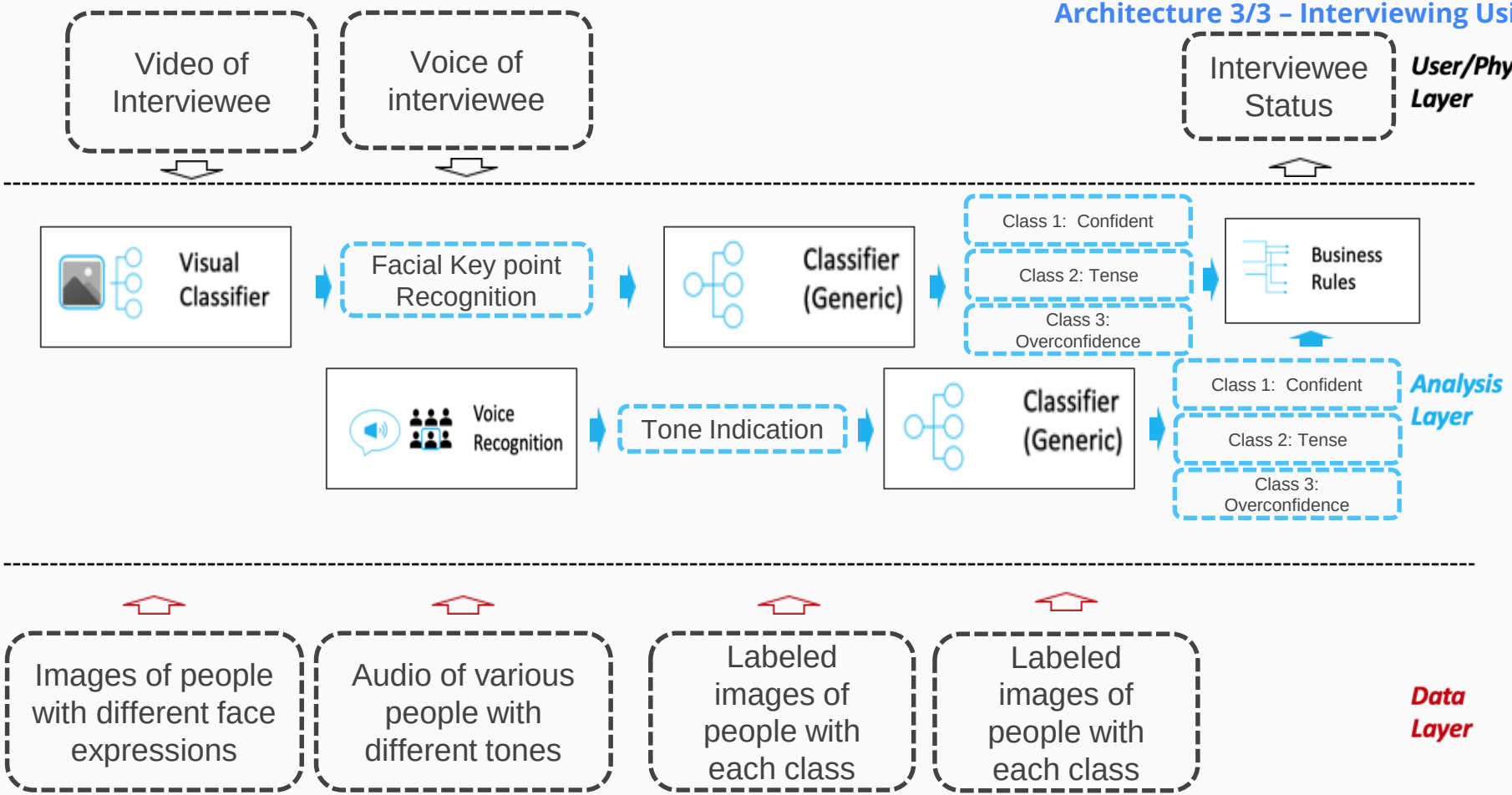
Analysis Layer

Images of people with representing diverse ages, genders, and ethnicities

Business Rules act as a recommender, thus fed with other features data too

Data Layer

Architecture 3/3 – Interviewing Using AI



Excellent, you've completed Step 3 of the project!

AI for Business Leaders
Project Step 4C

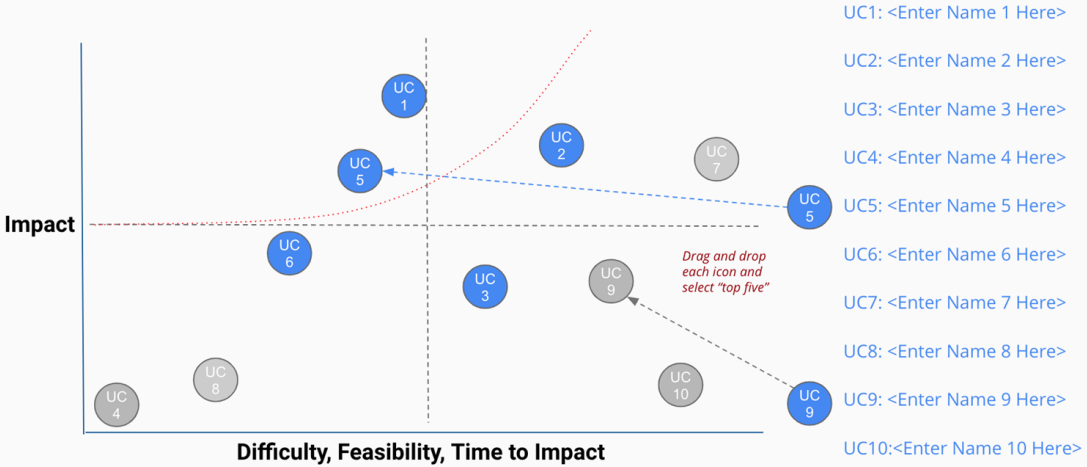
Second Prioritization Grid

Your Second Prioritization Grid

Based on new information from your further analyses of your use cases in step 4A and 4B, you'll engage in the same exercise as you did before in Step 2C to update your prioritization.

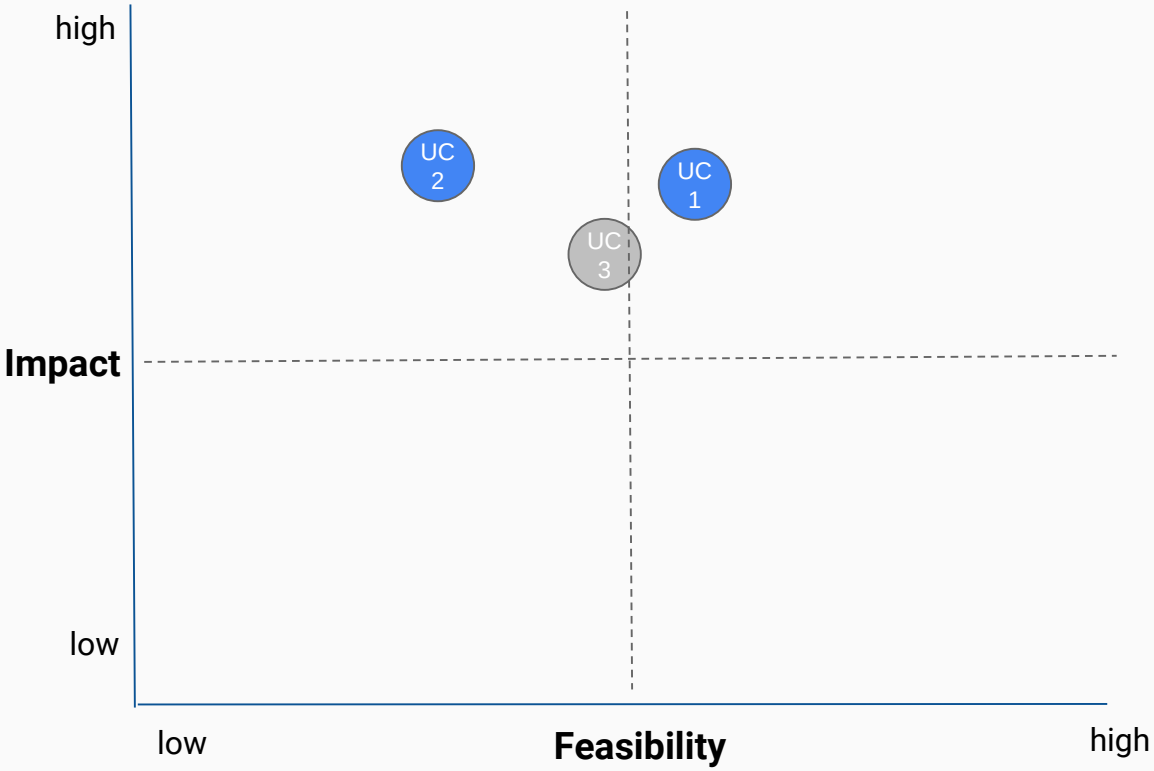
Move onto the grid the three use cases that you have been working with in steps 4A and 4B.

You MAY choose different use cases and shift your focus, if you feel these exercises have caused you to significantly revise your prior evaluations.



- *Drag and drop icons* UC 2 *for each use case*
- *Remember to think about both axes!*

Second Prioritization Grid



UC1: Age Recognition

UC2: Gender Classification

UC3: Interviewing Using AI

Note: You only need to locate three of these onto the grid.

Now Prioritize and Eliminate One More Use Case

1) Review the locations of your use cases on the grid on the previous slide. Remember we want to prioritize use cases for AI and ML that offer the greatest impact for the least difficulty.

2) Now in the grid on the previous slide change the color from blue to grey for one use case circle you want to de-prioritize.

3) This leaves your top two use cases in blue that you want to move forward with in the rest of the project. But you may still change these later.

Terrific, you've completed Step 4C of the project!

AI for Business Leaders
Project Step 5

Operational Considerations:
Accuracy, Bias, and Ethics

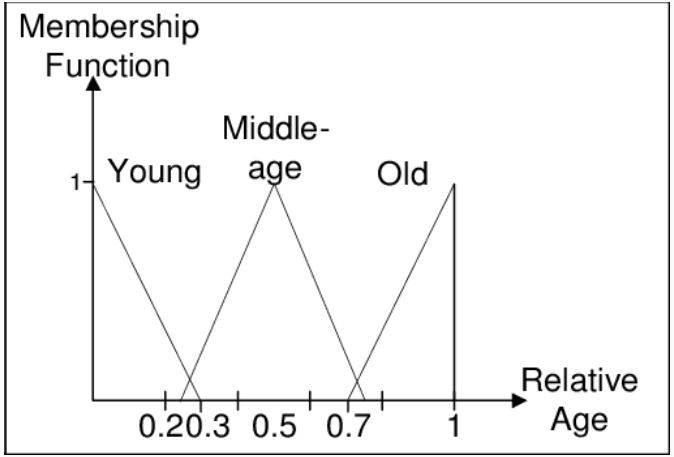
Accuracy, Bias, and Ethics Concerns

For each of your two remaining use cases, on the next two slides please write 2-3 paragraphs discussing how success will be measured and monitored.

- Start by focusing on model characteristics such as accuracy and bias, and speak to what success would look like.
- Comment on any other operational concerns, including ethical limitations, that could influence success.
- For each concern you raise, comment on how you would measure or monitor this concern on an ongoing basis.

First Use Case: Age Recognition

Please write 2-3 paragraphs here, following the guidelines on slide 21.



The model will be measured on various metrics:

- The accuracy of the model predicting the age of an individual and given that the age is a range, we need to setup age ranges like fuzzy logic to assess into which group the person lies.

- In addition to accuracy, we can calculate the range error as the difference Between the predicted age and the real age:

$$Model\ Error = (Predicted\ Age\ - Real\ Age)$$

- A successful model will be one that could predict the age of an individual With an membership accuracy to a class of at least 85% (Given Edge cases). And a model error of ±7years.

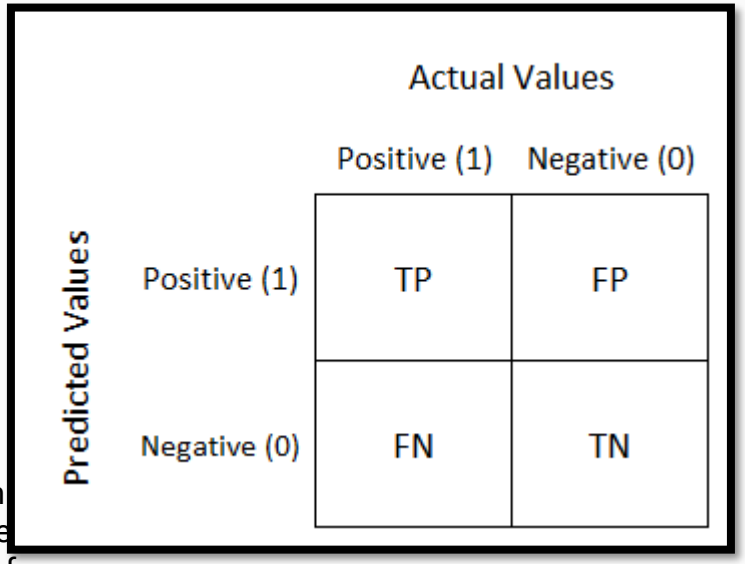
The limitations of the model could be and not limited to:

- Women with too much makeup could affect the accuracy of the model by a far range
- People with cosmetic surgery could look much younger than their real age

For the above concerns: We can cluster outliers and remove them from our calculations.

Second Use Case: Gender Classification

Please write 2-3 paragraphs here, following the guidelines on slide 21.



The model will be measured on various metrics:

- The accuracy of the model predicting the gender of an individual as a Simple proportion calculation as a starter.

$$\text{Accuracy} = \frac{\textit{Correctly Predicted Samples}}{\textit{Total Number of Training Samples}}$$

- In addition to accuracy, we need to calculate the precision and recall of the model, As accuracy could be vulnerable to bias.

- A successful model will be one that could output a high recall and precision , thus scoring a F1 score of 1 at optimal cases. As this is not realistic given the Stochastic environment of the model, we would want to achieve an F1 score of Near 0.9 and the same applies for accuracy.

The limitations of the model could be and not limited to:

- Arabic women with hijab could skew the model and output them as males (tried it in different models).

For the above concern: We can use find more features beside the hair that could contribute to an image of a person to being A female, rather than specifying them as males. Furthermore, we could adjust the threshold of the classifier.

Well done! You've completed Step 5 of the project!

AI for Business Leaders
Project Step 6B

Feedback and
Final Prioritization Grid

Feedback Visualization

Depending on how you chose to gather feedback -- survey, phone call, etc. -- you will have a mix of quantitative and qualitative results.

Use the following pages to document your key takeaways in the form of verbatim quotes and visualizations.

For verbatim quotes, you should use direct quotes that indicate the support and critiques you encountered.

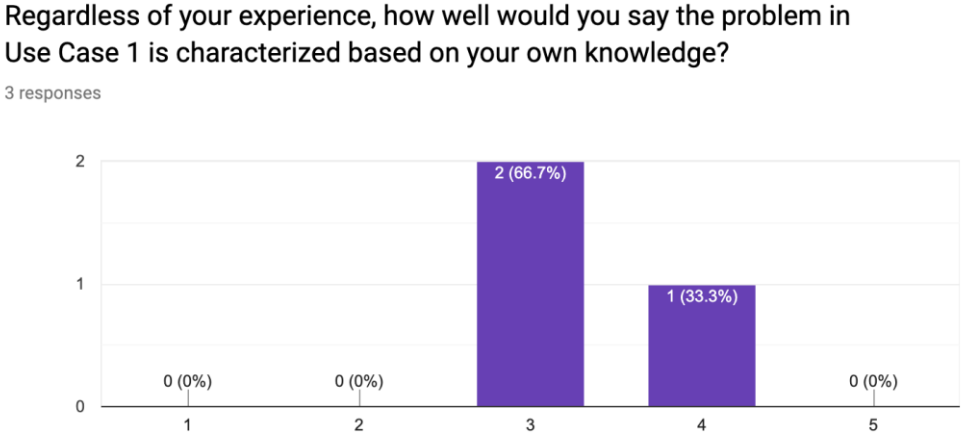
For visualizations, feel free to use the graph provided in your Google Form.

Verbatim Quote Example

"Great job with x, y, z"

"Use case 7 would fundamentally change our business because of _____"

Visualization Example



Verbatim Quotes – Age Recognition

It could be good to avoid spamming ads

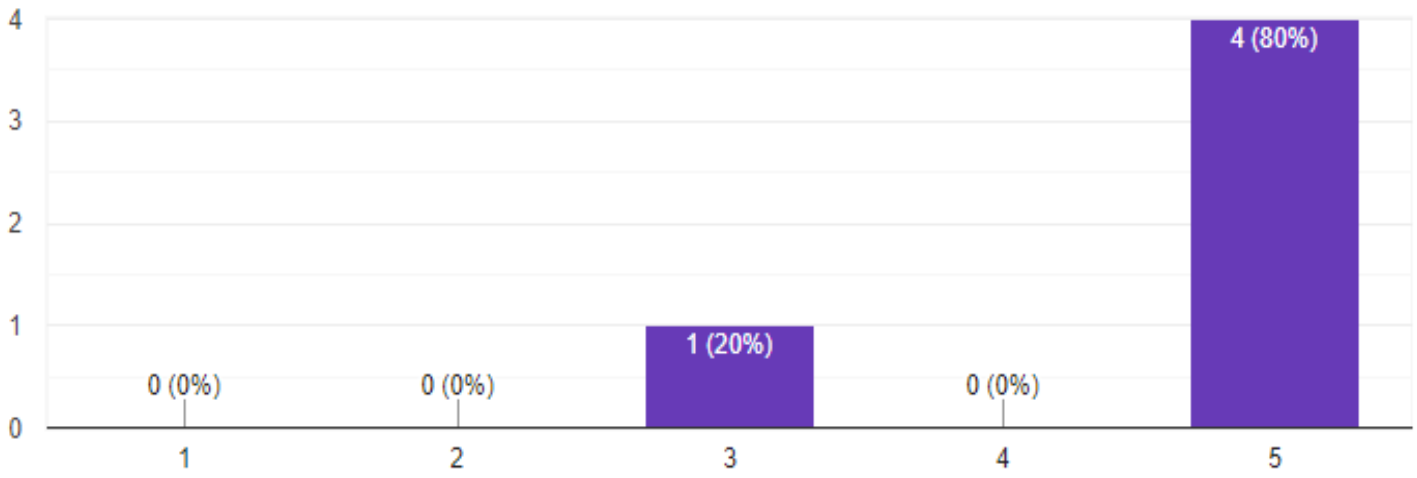
It is the future of marketing , just like in movies about the future where products are personalized and showed personally to people

New stage of current advertisement system

Visualization - Age Recognition

If the solution proposed in Use Case 1 worked, to what extent do you believe it would create business value (e.g., increase revenue or reduce costs) for people in your business?

5 responses



Verbatim Quotes – Gender Classification

The potential of this technology and audience targeting

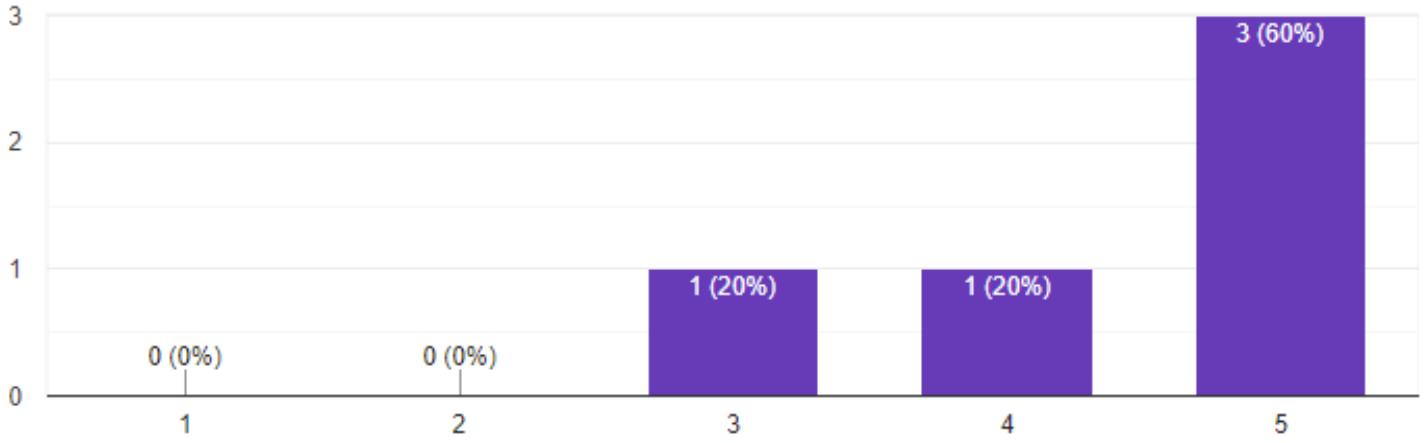
It would be great to help people pick up the products that best suite them

The market segmentation and audience targeting

Visualization - Gender Classification

If the solution proposed in Use Case 2 worked, to what extent do you believe it would create business value (e.g., increase revenue or reduce costs) for people in your business?

5 responses

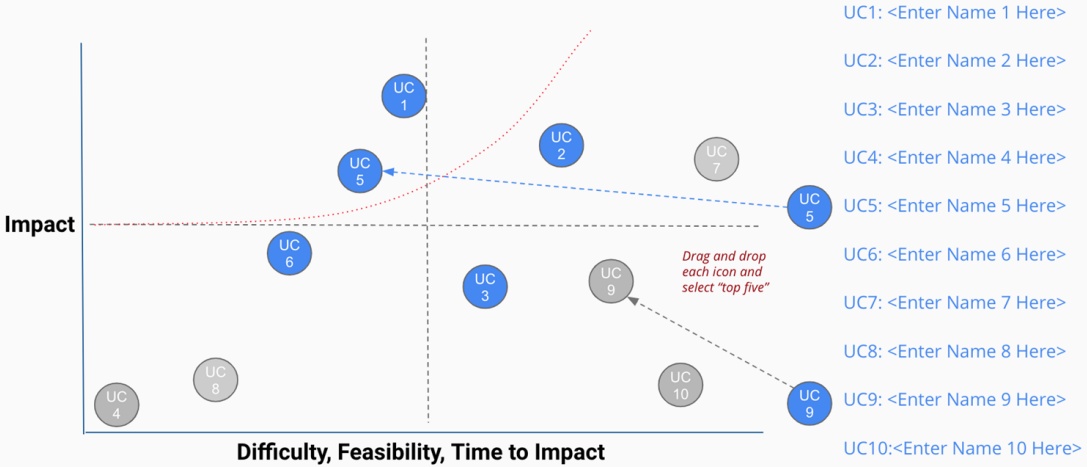


Your Final Prioritization Grid

Based on the feedback you've gathered, and all of the previous information for each use case, you'll now engage in the same prioritizing exercise as you have twice before.

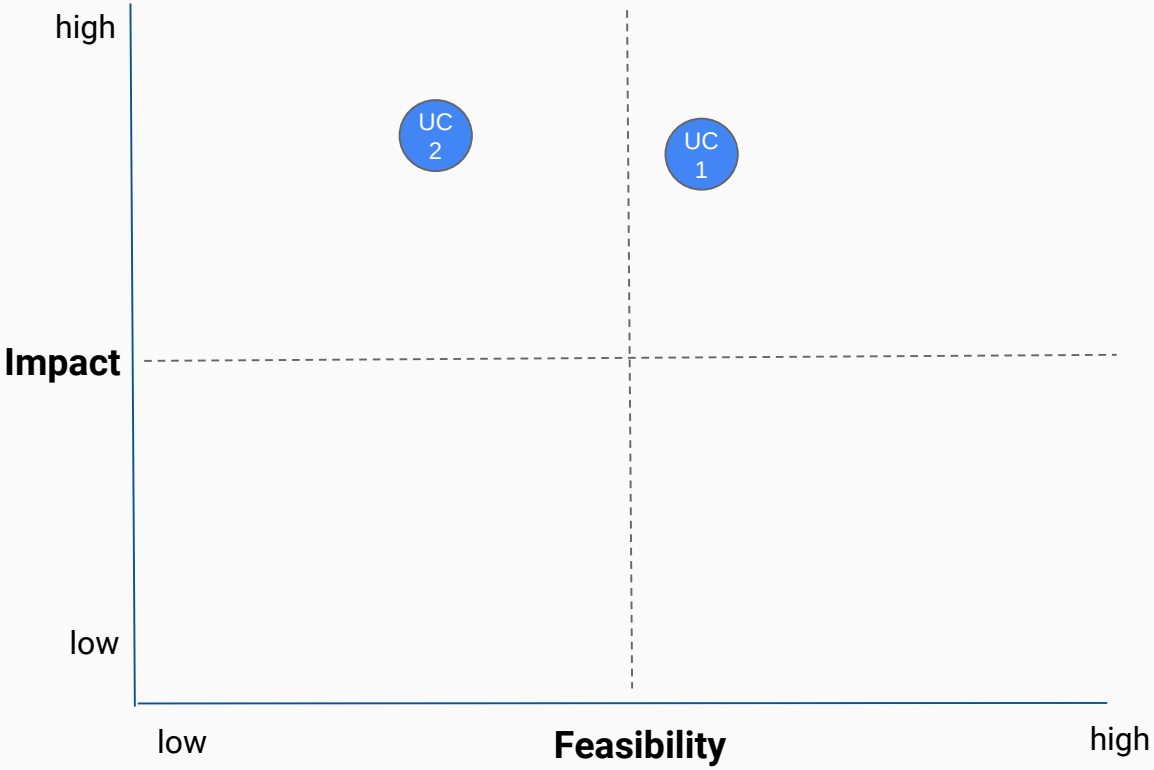
You MAY choose to re-prioritize use cases and shift your focus if you feel these exercises have caused you to significantly revise your prior evaluations.

At the end of this exercise, you should have a final point of view on the use cases you'll advocate in your ML/AI strategy!



- *Drag and drop icons* UC 2 *for each use case*
- *Remember to think about both axes!*

Final Prioritization Grid



UC1: Age Recognition

UC2: Gender Classification

Note: You only need to move 2 of these use cases onto the grid.

Nice work, you've completed Step 6B of the project!