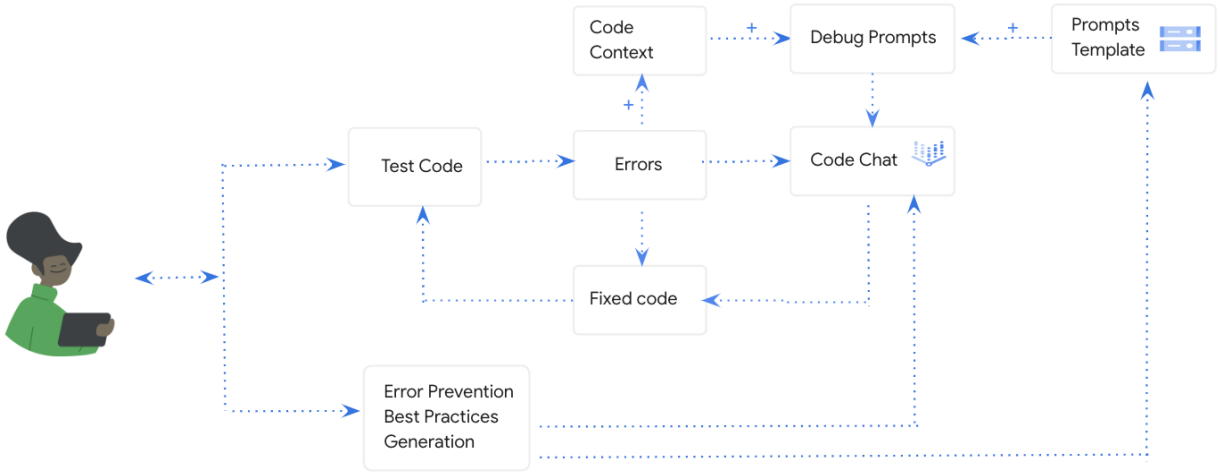
Demo Guide

Lei Pan 11/6

Example - Iterative Debugging with context



UI Demo

Step 1: Enable Vertex AI in your GCP project

1. Go to the Vertex AI Console: https://console.cloud.google.com/vertex-ai/: https://console.cloud.google.com/vertex-ai/.
2. Click the Enable Vertex AI button.
3. Follow the on-screen instructions to enable Vertex AI.

Step 2: Navigate to the Language section under Generative AI Studio and click Code Prompt

1. In the Vertex AI Console, click the Generative AI Studio tab.
2. In the Language section, click the Code Prompt button.

Step 3: Test the model with following prompts. Adjust temperature to 0. This worked well for me.

- Start with a simple debugging test and generate the fixed code.
- Then ask the model to add the fixed code back so that you don't have to.

- Continue fixing the following 2 errors
- Then ask the model to generate best practice advice based on the errors it fixed.

Here are all the prompts that I used. Unfortunately, in the UI, you have to input all of them. In API implementations, you can save them as variables, so that you don't have to type everything every time.

```
Prompt 1

You are great at debugging python code, please tell me how to fix the code based on
the error message below:
---------------------------------------------------------------------------

AttributeError Traceback (most recent call last)

<ipython-input-4-5edad045ec1c> in <module>()

1 for contest in move_data.Contest.unique():

----> 2 data_subset = move_data[move_data.Move_Contest == contest]

3 plt.scatter(data_subset.Power,

4 data_subset.Accuracy, label = contest)

5 plt.xlabel('Power')



/opt/conda/lib/python3.6/site-packages/pandas/core/generic.py in __getattr__(self,
name)

4374 if self._info_axis._can_hold_identifiers_and_holds_name(name):

4375 return self[name]

-> 4376 return object.__getattribute__(self, name)
```

```
4377

4378 def __setattr__(self, name, value):



AttributeError: 'DataFrame' object has no attribute 'Move_Contest'
```

Prompt 2

```
Here is the original code: plt.style.use('seaborn-ticks')

pokemon_data = pd.read_csv('gs://demo_test_public_bucket/uj13/pokemon-data.csv',

sep = ';', converters={'Types':ast.literal_eval, 'Abilities':ast.literal_eval,
'Moves':ast.literal_eval})

move_data = pd.read_csv('gs://demo_test_public_bucket/uj13/move-data.csv', index_col =
0)

for var in ['Power', 'Accuracy']:

move_data[var].replace('None', np.nan, inplace=True)

move_data[var] = move_data[var].astype(float)



for contest in move_data.Contest.unique():

data_subset = move_data[move_data.Move_Contest == contest]

plt.scatter(data_subset.Power,

data_subset.Accuracy, label = contest)
```

```
plt.xlabel('Power')

plt.ylabel('Accuracy')

plt.legend(loc = 'lower left', bbox_to_anchor = (1, 0))

plt.show(). Please add the fix back into the original code based on the error message
below:---------------------------------------------------------------------------

AttributeError Traceback (most recent call last)

<ipython-input-4-5edad045ec1c> in <module>()

1 for contest in move_data.Contest.unique():

----> 2 data_subset = move_data[move_data.Move_Contest == contest]

3 plt.scatter(data_subset.Power,

4 data_subset.Accuracy, label = contest)

5 plt.xlabel('Power')



/opt/conda/lib/python3.6/site-packages/pandas/core/generic.py in __getattr__(self,
name)

4374 if self._info_axis._can_hold_identifiers_and_holds_name(name):

4375 return self[name]

-> 4376 return object.__getattribute__(self, name)

4377

4378 def __setattr__(self, name, value):
```

```
AttributeError: 'DataFrame' object has no attribute 'Move_Contest'

and explain what you fixed
```

Prompt 3

```
Here is the original code: plt.style.use('seaborn-ticks')

pokemon_data = pd.read_csv('gs://demo_test_public_bucket/uj13/pokemon-data.csv',

sep = ';', converters={'Types':ast.literal_eval, 'Abilities':ast.literal_eval,
'Moves':ast.literal_eval})

move_data = pd.read_csv('gs://demo_test_public_bucket/uj13/move-data.csv', index_col =
0)

for var in ['Power', 'Accuracy']:

move_data[var].replace('None', np.nan, inplace=True)

move_data[var] = move_data[var].astype(float)



for contest in move_data.Contest.unique():

data_subset = move_data[move_data.Contest == contest]

plt.scatter(data_subset.Power,

data_subset.Accuracy, label = contest)

plt.xlabel('Power')

plt.ylabel('Accuracy')
```

```
plt.legend(loc = 'lower left', bbox_to_anchor = (1, 0))

plt.show()

for generation in move_data.Generation.unique():

print(generation)

data_subset = move_data[move_data.Generation == generation].dropna()

subset_label = 'Generation ' + generation

sns.kdeplot(data_subset.Power, label = subset_label, shade = True)

plt.xlabel('Power')

plt.ylabel('How many Pokemon')

plt.show(). Please add the fix back into the original code based on the error message
below: ---------------------------------------------------------------------------

TypeError Traceback (most recent call last)

<ipython-input-5-b8b08e95c8e1> in <module>()

2 print(generation)

3 data_subset = move_data[move_data.Generation == generation].dropna()

----> 4 subset_label = 'Generation ' + generation

5 sns.kdeplot(data_subset.Power, label = subset_label, shade = True)

6 plt.xlabel('Power')



TypeError: must be str, not numpy.int64
```

and explain what you fixed.

Prompt 4

Here is the original code: plt.style.use('seaborn-ticks')

```
pokemon_data = pd.read_csv('gs://demo_test_public_bucket/uj13/pokemon-data.csv',

sep = ';', converters={'Types':ast.literal_eval, 'Abilities':ast.literal_eval,
'Moves':ast.literal_eval})

move_data = pd.read_csv('gs://demo_test_public_bucket/uj13/move-data.csv', index_col =
0)

for var in ['Power', 'Accuracy']:

move_data[var].replace('None', np.nan, inplace=True)

move_data[var] = move_data[var].astype(float)



for contest in move_data.Contest.unique():

data_subset = move_data[move_data.Contest == contest]

plt.scatter(data_subset.Power,

data_subset.Accuracy, label = contest)

plt.xlabel('Power')

plt.ylabel('Accuracy')

plt.legend(loc = 'lower left', bbox_to_anchor = (1, 0))
```

```
plt.show()



for generation in move_data.Generation.unique():

print(generation)

data_subset = move_data[move_data.Generation == generation].dropna()

subset_label = 'Generation ' + str(generation)

sns.kdeplot(data_subset.Power, label = subset_label, shade = True)

plt.xlabel('Power')

plt.ylabel('How many Pokemon')

plt.show()

plt.scatter(pokemon_data.Attack,

pokemon_data['Special Attack'], color = pokemon_data.Defense, cmap = 'cool', alpha =
0.5)

plt.xlabel('Attack')

plt.ylabel('Special Attack')

plt.colorbar(label = 'Defense')

plt.show(). Please add the fix back into the original code based on the error message
below: ---------------------------------------------------------------------------

KeyError Traceback (most recent call last)

/opt/conda/lib/python3.6/site-packages/matplotlib/colors.py in to_rgba(c, alpha)

173 try:
```

```
--> 174 rgba = _colors_full_map.cache[c, alpha]

175 except (KeyError, TypeError): # Not in cache, or unhashable.



KeyError: (75, None)



During handling of the above exception, another exception occurred:



ValueError Traceback (most recent call last)

/opt/conda/lib/python3.6/site-packages/matplotlib/axes/_axes.py in scatter(self, x, y,
s, c, marker, cmap, norm, vmin, vmax, alpha, linewidths, verts, edgecolors, **kwargs)

4142 try:

-> 4143 mcolors.to_rgba_array(co)

4144 except ValueError:



/opt/conda/lib/python3.6/site-packages/matplotlib/colors.py in to_rgba_array(c, alpha)

274 for i, cc in enumerate(c):

--> 275 result[i] = to_rgba(cc, alpha)

276 return result



/opt/conda/lib/python3.6/site-packages/matplotlib/colors.py in to_rgba(c, alpha)
```

```
175 except (KeyError, TypeError): # Not in cache, or unhashable.

--> 176 rgba = _to_rgba_no_colorcycle(c, alpha)

177 try:



/opt/conda/lib/python3.6/site-packages/matplotlib/colors.py in
_to_rgba_no_colorcycle(c, alpha)

226 # Test dimensionality to reject single floats.

--> 227 raise ValueError("Invalid RGBA argument: {!r}".format(orig_c))

228 # Return a tuple to prevent the cached value from being modified.



ValueError: Invalid RGBA argument: 75



During handling of the above exception, another exception occurred:



ValueError Traceback (most recent call last)

<ipython-input-6-dba81d5a88a8> in <module>()

1 plt.scatter(pokemon_data.Attack,

----> 2 pokemon_data['Special Attack'], color = pokemon_data.Defense, cmap = 'cool',
alpha = 0.5)

3 plt.xlabel('Attack')

4 plt.ylabel('Special Attack')
```

```
5 plt.colorbar(label = 'Defense')



/opt/conda/lib/python3.6/site-packages/matplotlib/pyplot.py in scatter(x, y, s, c,
marker, cmap, norm, vmin, vmax, alpha, linewidths, verts, edgecolors, data, **kwargs)

2860 vmin=vmin, vmax=vmax, alpha=alpha, linewidths=linewidths,

2861 verts=verts, edgecolors=edgecolors, **({"data": data} if data

-> 2862 is not None else {}), **kwargs)

2863 sci(__ret)

2864 return __ret



/opt/conda/lib/python3.6/site-packages/matplotlib/__init__.py in inner(ax, data,
*args, **kwargs)

1808 "the Matplotlib list!)" % (label_namer, func.__name__),

1809 RuntimeWarning, stacklevel=2)

-> 1810 return func(ax, *args, **kwargs)

1811

1812 inner.__doc__ = _add_data_doc(inner.__doc__,



/opt/conda/lib/python3.6/site-packages/matplotlib/axes/_axes.py in scatter(self, x, y,
s, c, marker, cmap, norm, vmin, vmax, alpha, linewidths, verts, edgecolors, **kwargs)

4143 mcolors.to_rgba_array(co)
```

```
4144 except ValueError:

-> 4145 raise ValueError("'color' kwarg must be an mpl color"

4146 " spec or sequence of color specs.\n"

4147 "For a sequence of values to be color-mapped,"



ValueError: 'color' kwarg must be an mpl color spec or sequence of color specs.

For a sequence of values to be color-mapped, use the 'c' argument instead. and explain
what you fixed.
```

Prompt 5

```
Based on the errors above, please tell me how to prevent similar errors in the future
in this codebase.
```

API Demo (API Demo Link)

Step 1: Enable Vertex AI in your GCP project

1. Go to the Vertex AI Console: https://console.cloud.google.com/vertex-ai/.
2. Click the Enable Vertex AI button.
3. Follow the on-screen instructions to enable Vertex AI.

Step 2: Install libraries

Step 4: Run code

- All the steps are in the notebook
- Refer to the videos for more details