

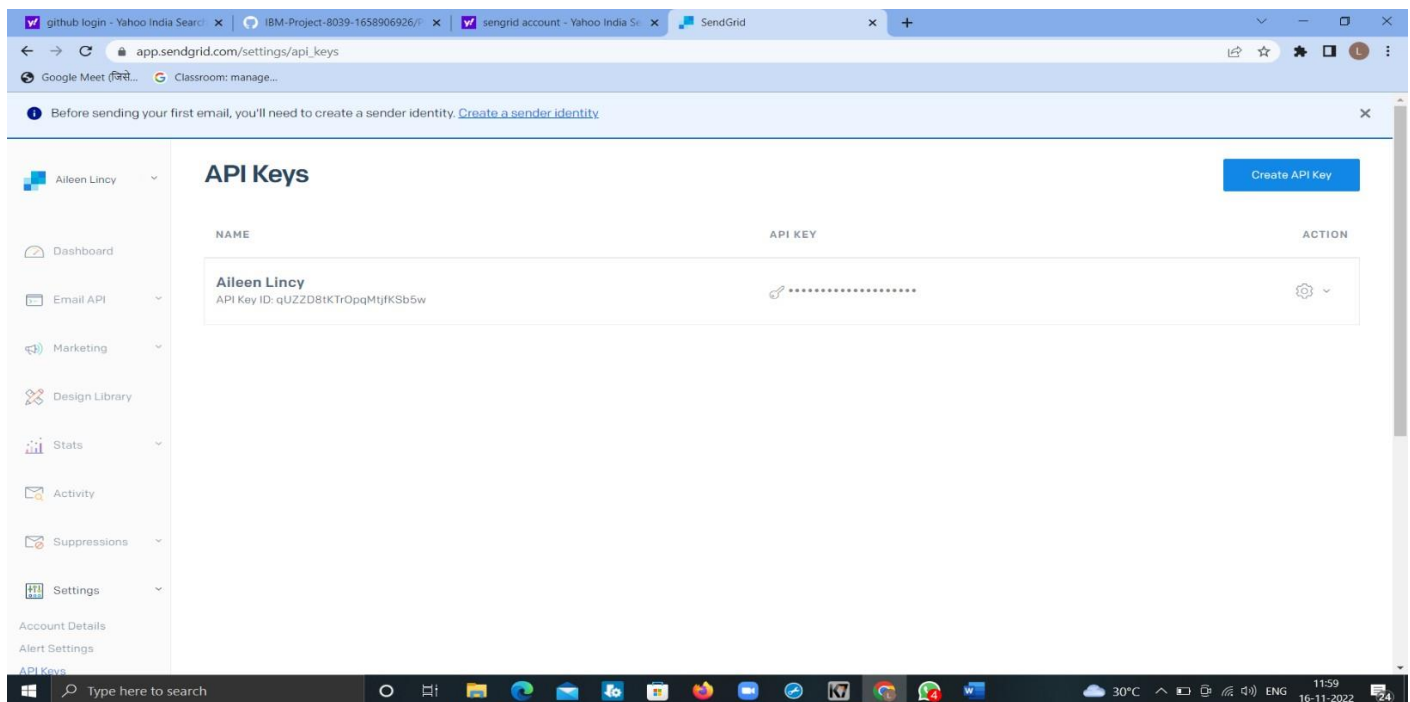
SENDGRID INTEGRATION WITH PYTHON

Team ID	PNT2022TMID16375
Project Name	Nutrition Assistant Application

STEP 1: REQUIREMENTS:

Python 2.6, 2.7, 3.4 or 3.5.

STEP 2: Create an API key



The screenshot shows a web browser window with the URL `app.sendgrid.com/settings/api_keys`. The page displays the 'API Keys' management interface. On the left is a sidebar menu with options: Aileen Lincy, Dashboard, Email API, Marketing, Design Library, Stats, Activity, Suppressions, and Settings. The main content area has a 'Create API Key' button in the top right. Below it is a table with columns 'NAME', 'API KEY', and 'ACTION'. The table contains one entry for 'Aileen Lincy' with the API Key ID 'qUZZD8tKTrOpqMtjFKSb5w'. The API key itself is masked with dots. An action menu with a gear icon and a dropdown arrow is visible for this entry. A notification banner at the top of the page states: 'Before sending your first email, you'll need to create a sender identity. [Create a sender identity](#)'.

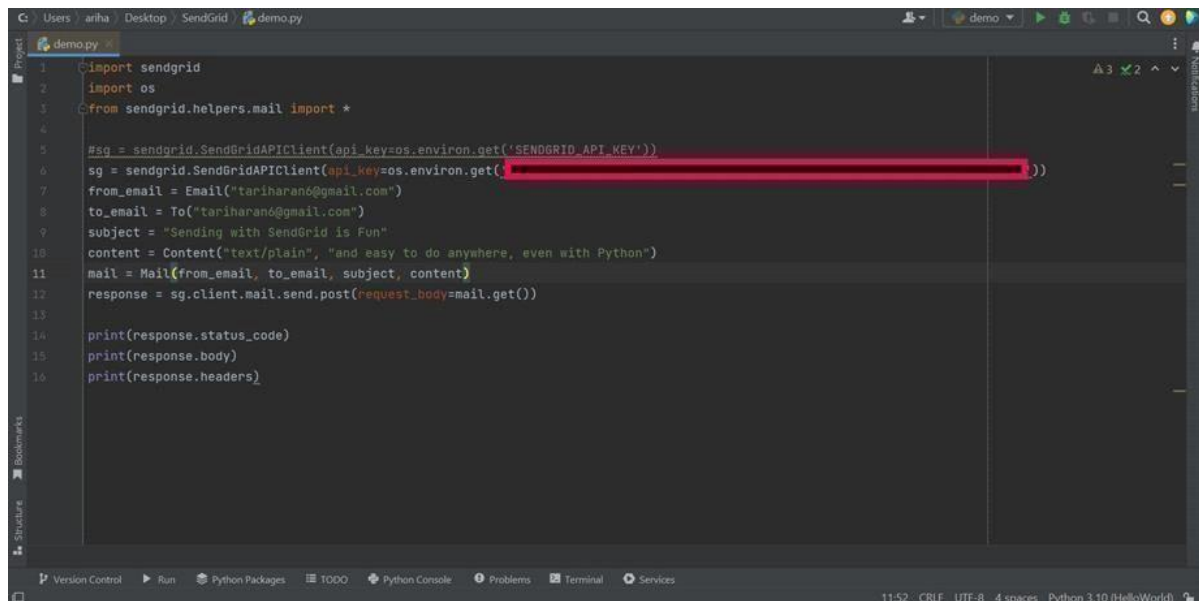
STEP 3:

INSTALL

PAKAGE: > pip install sendgrid

SETP 4:

SEND EMAIL

A screenshot of a Visual Studio Code editor window. The file explorer on the left shows a project named 'demo.py'. The main editor area displays a Python script for sending an email using the SendGrid API. The script includes imports for 'sendgrid' and 'os', and 'from sendgrid.helpers.mail import *'. It defines a SendGrid API client using an environment variable for the API key. Then, it creates an email object with a from_email, to_email, subject, and content. Finally, it sends the email via the client's mail.send.post method and prints the response status code, body, and headers. The script is 16 lines long. The status bar at the bottom shows '11:52 CRLF UTF-8 4 spaces Python 3.10.8 HelloWorld'.

SENDGRID PYTHON CODE :

```

1  import os
2  from sendgrid import SendGridAPIClient
3  from sendgrid.helpers.mail import Mail
4
5  message = Mail(
6      from_email='from_email@example.com',
7      to_emails='to@example.com',
8      subject='Sending with Twilio SendGrid is Fun',
9      html_content='<strong>and easy to do anywhere, even with
      Python</strong>')
10 try:
11     sg = SendGridAPIClient(os.environ.get('SENDGRID_API_KEY'))
12     response = sg.send(message)
13     print(response.status_code)
14     print(response.body)
15     print(response.headers)
16 except Exception as e:
17     print(e.message)

```

HTTP CLIENT PROGRAM

```

1  """HTTP Client library"""
2  import json
3  import logging
4  from .exceptions import handle_error
5
6  try:
7      # Python 3
8      import urllib.request as urllib
9      from urllib.parse import urlencode
10     from urllib.error import HTTPError
11 except ImportError:
12     # Python 2

```

```

13     import urllib2 as urllib
14     from urllib2 import HTTPError
15     from urllib import urlencode
16
17     _logger = logging.getLogger(__name__)
18
19
20     class Response(object):
21         """Holds the response from an API call."""
22
23         def __init__(self, response):
24             """
25             :param response: The return value from a open call
26                             on a urllib.build_opener()
27             :type response: urllib response object
28             """
29             self._status_code = response.getcode()
30             self._body = response.read()
31             self._headers = response.info()
32
33         @property
34         def status_code(self):
35             """
36             :return: integer, status code of API call
37             """
38             return self._status_code
39
40         @property
41         def body(self):
42             """
43             :return: response from the API
44             """
45             return self._body
46
47         @property

```

```

48     def headers(self):
49         """
50         :return: dict of response headers
51         """
52         return self._headers
53
54     @property
55     def to_dict(self):
56         """
57         :return: dict of response from the API
58         """
59         if self.body:
60             return json.loads(self.body.decode('utf-8'))
61         else:
62             return None
63
64
65 class Client(object):
66     """Quickly and easily access any REST or REST-like API."""
67
68     # These are the supported HTTP verbs
69     methods = ('delete', 'get', 'patch', 'post', 'put')
70
71     def __init__(self,
72                 host,
73                 request_headers=None,
74                 version=None,
75                 url_path=None,
76                 append_slash=False,
77                 timeout=None):
78         """
79         :param host: Base URL for the api. (e.g.
80                     https://api.sendgrid.com)
81         :type host: string
82         :param request_headers: A dictionary of the headers you want

```

```

82             applied on all calls
83         :type request_headers: dictionary
84         :param version: The version number of the API.
85             Subclass _build_versioned_url for custom
behavior.
86             Or just pass the version as part of the URL
87             (e.g. client._("/v3"))
88         :type version: integer
89         :param url_path: A list of the url path segments
90         :type url_path: list of strings
91         """
92         self.host = host
93         self.request_headers = request_headers or {}
94         self._version = version
95         # _url_path keeps track of the dynamically built url
96         self._url_path = url_path or []
97         # APPEND SLASH set
98         self.append_slash = append_slash
99         self.timeout = timeout
100
101     def _build_versioned_url(self, url):
102         """Subclass this function for your own needs.
103             Or just pass the version as part of the URL
104             (e.g. client._('/v3'))
105         :param url: URI portion of the full URL being requested
106         :type url: string
107         :return: string
108         """
109         return '{}{}/v{}{}'.format(self.host, str(self._version),
url)
110
111     def _build_url(self, query_params):
112         """Build the final URL to be passed to urllib
113
114         :param query_params: A dictionary of all the query

```

```

parameters
115         :type query_params: dictionary
116         :return: string
117         """
118         url = ''
119         count = 0
120         while count < len(self._url_path):
121             url += '/{}'.format(self._url_path[count])
122             count += 1
123
124         # add slash
125         if self.append_slash:
126             url += '/'
127
128         if query_params:
129             url_values = urlencode(sorted(query_params.items()),
True)
130             url = '{}?{}'.format(url, url_values)
131
132         if self._version:
133             url = self._build_versioned_url(url)
134         else:
135             url = '{}{}'.format(self.host, url)
136         return url
137
138     def _update_headers(self, request_headers):
139         """Update the headers for the request
140
141         :param request_headers: headers to set for the API call
142         :type request_headers: dictionary
143         :return: dictionary
144         """
145         self.request_headers.update(request_headers)
146
147     def _build_client(self, name=None):

```



```

148         """Make a new Client object
149
150         :param name: Name of the url segment
151         :type name: string
152         :return: A Client object
153         """
154         url_path = self._url_path + [name] if name else
            self._url_path
155         return Client(host=self.host,
156                       version=self._version,
157                       request_headers=self.request_headers,
158                       url_path=url_path,
159                       append_slash=self.append_slash,
160                       timeout=self.timeout)
161
162     def _make_request(self, opener, request, timeout=None):
163         """Make the API call and return the response. This is
            separated into
164             it's own function, so we can mock it easily for testing.
165
166         :param opener:
167         :type opener:
168         :param request: url payload to request
169         :type request: urllib.Request object
170         :param timeout: timeout value or None
171         :type timeout: float
172         :return: urllib response
173         """
174         timeout = timeout or self.timeout
175         try:
176             return opener.open(request, timeout=timeout)
177         except HTTPError as err:
178             exc = handle_error(err)
179             exc.__cause__ = None
180             _logger.debug('(method) Response: {status}')

```



```

        {body}'.format(
181             method=request.get_method(),
182             status=exc.status_code,
183             body=exc.body))
184         raise exc
185
186     def _ (self, name):
187         """Add variable values to the url.
188         (e.g. /your/api/(variable_value)/call)
189         Another example: if you have a Python reserved word,
190         such as global,
191         in your url, you must use this method.
192
193         :param name: Name of the url segment
194         :type name: string
195         :return: Client object
196         """
197         return self._build_client(name)
198
199     def __getattr__(self, name):
200         """Dynamically add method calls to the url, then call a
201         method.
202         (e.g. client.name.name.method())
203         You can also add a version number by using
204         .version(<int>)
205
206         :param name: Name of the url segment or method call
207         :type name: string or integer if name == version
208         :return: mixed
209         """
210         if name == 'version':
211             def get_version(*args, **kwargs):
212                 """
213                 :param args: dict of settings
214                 :param kwargs: unused

```

```

212         :return: string, version
213         """
214         self._version = args[0]
215         return self._build_client()
216     return get_version
217
218     # We have reached the end of the method chain, make the API
    call
219     if name in self.methods:
220         method = name.upper()
221
222         def http_request(
223             request_body=None,
224             query_params=None,
225             request_headers=None,
226             timeout=None,
227             **_):
228             """Make the API call
229             :param timeout: HTTP request timeout. Will be
    propagated to
230                 urllib client
231             :type timeout: float
232             :param request_headers: HTTP headers. Will be
    merged into
233                 current client object state
234             :type request_headers: dict
235             :param query_params: HTTP query parameters
236             :type query_params: dict
237             :param request_body: HTTP request body
238             :type request_body: string or json-serializable
    object
239             :param kwargs:
240             :return: Response object
241             """
242             if request_headers:

```

```

243         self._update_headers(request_headers)
244
245     if request_body is None:
246         data = None
247     else:
248         # Don't serialize to a JSON formatted str
249         # if we don't have a JSON Content-Type
250         if 'Content-Type' in self.request_headers and \
251             self.request_headers['Content-Type'] != \
252             'application/json':
253             data = request_body.encode('utf-8')
254         else:
255             self.request_headers.setdefault(
256                 'Content-Type', 'application/json')
257             data =
258             json.dumps(request_body).encode('utf-8')
259
260     opener = urllib.build_opener()
261     request = urllib.Request(
262         self._build_url(query_params),
263         headers=self.request_headers,
264         data=data,
265     )
266     request.get_method = lambda: method
267
268     _logger.debug('(method) Request: {url}'.format(
269         method=method,
270         url=request.get_full_url()))
271     if request.data:
272         _logger.debug('PAYLOAD: {data}'.format(
273             data=request.data))
274     _logger.debug('HEADERS: {headers}'.format(
275         headers=request.headers))

```

```
276         response = Response(  
277             self._make_request(opener, request,  
                timeout=timeout)  
278         )  
279  
280         _logger.debug('{method} Response: {status}  
            {body}'.format(  
281             method=method,  
282             status=response.status_code,  
283             body=response.body))  
284  
285         return response  
286  
287         return http_request  
288     else:  
289         # Add a segment to the URL  
290         return self._(name)  
291  
292     def __getstate__(self):  
293         return self.__dict__  
294  
295     def setstate (self, state):
```