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In [1]:    #Program:To get a list of all factorial and kaprekar number in the range 1 to 10
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           #DATE:28-Sept-2021
           #Python Version:3.7
           #CAVEATS:None
           #LICENSE:None
```

In [ ]:

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In [2]:    import numpy as np
           import math
           import json
           factorial=["Factorial"]
           karprekar=["Karprekar"]
           for i in range(1,10):
               factorial.append(math.factorial(i))
           for n in range(1,10):
               n2 = str(n**2)
               for i in range(len(n2)):
                   a, b = int(n2[:i] or 0), int(n2[i:])
                   if b and a + b == n:
                       karprekar.append(n)
           factorial=np.array(factorial)
           karprekar=np.array(karprekar)
           json_dict={factorial[0]:factorial[1::],karprekar[0]:karprekar[1::]}
           print(json_dict)
```

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{'Factorial': array(['1', '2', '6', '24', '120', '720', '5040', '40320', '362880'],
      dtype='<U9'), 'Karprekar': array(['1', '9'], dtype='<U9')}
```

In [ ]: