

```
In [3]:
```

```
import random
from random import sample
import time
import matplotlib.pyplot as plt
```

```
In [4]:
```

```
def measure(seq,number):
    start = time.time()
    subset = sample(seq, number)
    for i in range(10000):
        subset.insert(number//5,25)
    end = time.time()
    runtimeIn = end - start
    print(f"The runtime is {runtimeIn} sec")
    return runtimeIn
```

```
In [9]:
```

```
random.seed(1)
sequence = [i for i in range(100000)]
seqRange = [50,100,500,1000,2000,5000,10000]
runtime = []
for i in range(7):
    print(f"{i+1}: for {seqRange[i]} operations\n -----")
    runtime.append(measure(sequence,seqRange[i]))
```

```
1: for 50 operations
```

```
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```

```
The runtime is 0.017191410064697266 sec
```

```
2: for 100 operations
```

```
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```

```
The runtime is 0.018888235092163086 sec
```

```
3: for 500 operations
```

```
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```

```
The runtime is 0.01996612548828125 sec
```

```
4: for 1000 operations
```

```
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```

```
The runtime is 0.02003026008605957 sec
```

```
5: for 2000 operations
```

```
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```

```
The runtime is 0.02599334716796875 sec
```

```
6: for 5000 operations
```

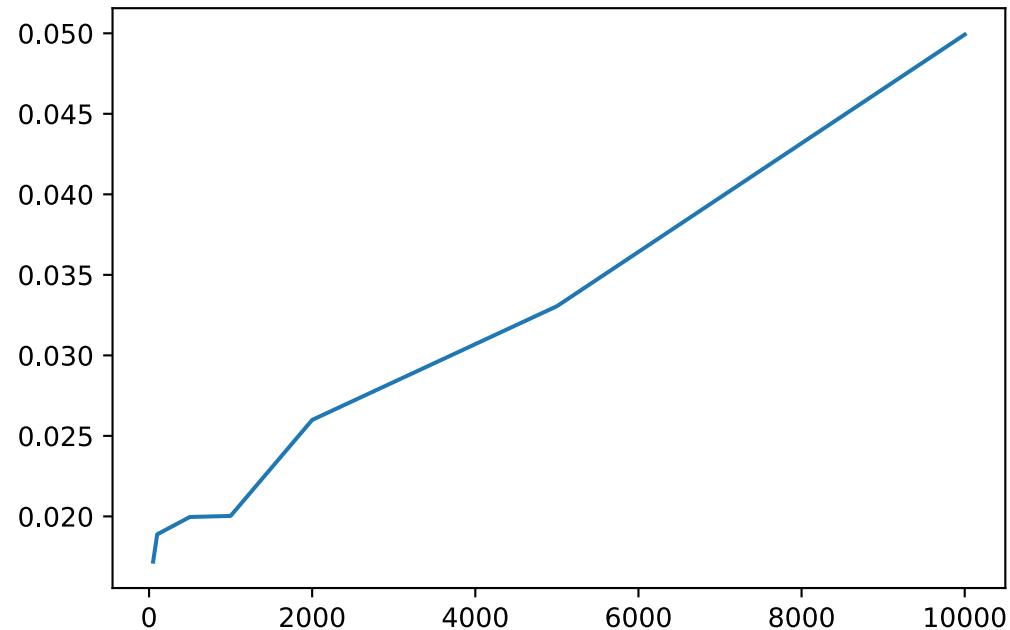
```
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```

```
The runtime is 0.03305387496948242 sec
```

```
7: for 10000 operations
-----
The runtime is 0.04992270469665527 sec
```

```
In [10]: plt.plot(seqRange, runtime)
```

```
Out[10]: [
```



```
In [ ]:
```