

Assignment 2 Report

Question 1

1. This code is saved in q1.py
2. This program allows the user to input a positive number and output the square root of the number.
3. Execute as followings:

```
Enter a positive number:10
The approximation of the square root is: 3.162277660168379
```

Question 2

1. This code is saved in q2.py
2. This program is able to display the first 100 emirps, which are nonpalindromic prime numbers whose reversals are also primes. The output would be displayed 10 numbers a line and aligned properly.
3. Execute as followings:

```
13 17 31 37 71 73 79 97 107 113
149 157 167 179 199 311 337 347 359 389
701 709 733 739 743 751 761 769 907 937
941 953 967 971 983 991 1009 1021 1031 1033
1061 1069 1091 1097 1103 1109 1151 1153 1181 1193
1201 1213 1217 1223 1229 1231 1237 1249 1259 1279
1283 1301 1321 1381 1399 1409 1429 1439 1453 1471
1487 1499 1511 1523 1559 1583 1597 1601 1619 1657
1669 1723 1733 1741 1753 1789 1811 1831 1847 1867
1879 1901 1913 1933 1949 1979 3011 3019 3023 3049
```

Question 3

1. This code is saved in q3.py
2. This program allows the user to input a card number, which the user intends to validate. This number should be a positive number. The output would be 'valid' if the number satisfies certain requirements of the validation algorithm, and 'invalid' if it doesn't.
3. Execute as followings:

```
Enter your credit card number:4388576018402626
Invalid
PS D:\Python files> d:; cd 'd:\Python files';
er' '63727' '--' 'd:\Python files\csc1001\12009
Enter your credit card number:4388576018410707
Valid
```

Question 4

1. This code is saved in q4.py
2. This program allows the user to input two words that they want to compare whether is an anagram (containing same letters) or not.

The output would be 'is an anagram' if they are anagrams; otherwise, it displays 'is not an anagram'

3. Execute as followings:

```
Please enter the first word:silent
Please enter the second word:listen
is an anagram.
PS D:\Python files> d:; cd 'd:\Python files\cs63814'
Please enter the first word:he
Please enter the second word:she
is not an anagram.
```

Question 5

1. This code is saved in q5.py
2. The program displays the result of the locker puzzle described in the requirements. The output would be a list containing the numbers of all lockers that are still open after the operations.
3. Execute as followings:

```
Lockers are open:1 4 9 16 25 36 49 64 81 100
```

Question 6

1. This code is saved in q6.py
2. This program presents a solution to the game: Eight Queens. The output would be a chessboard containing 8 'Q's that satisfies the condition that no two queens are in the same row, same column or same diagonal.
3. Execute as followings:

```
  |Q|  |  |  |Q|  |  |  |Q|  |
  |  |  |  |  |Q|  |  |  |Q|  |
  |  |Q|  |  |  |  |Q|  |
  |  |  |  |  |  |  |Q|  |
  |Q|  |  |Q|  |  |  |  |
  |  |  |Q|  |  |  |  |
PS D:\Python files> 
```