

CMSC330 Fall 2011 Quiz #2 Solutions

1. (4 pts) What is the output (if any) of the following Ruby program? Write FAIL if code does not execute.

a. (2 pts)

```
if "Teach the Terrapin" =~ /[a-z]+/
  puts $1
end
```

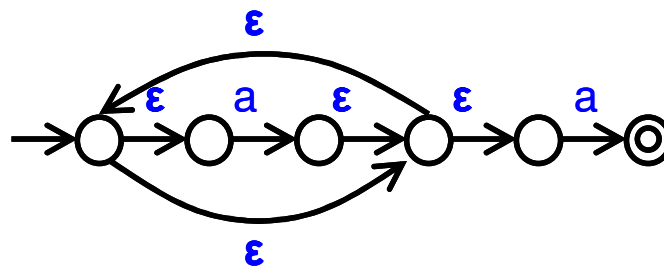
Output = **each**

b. (2 pts)

```
if "Drill the Diamondback" =~ /^aeiou+/
  puts $1
  puts $2
end
```

Output = **Dr
nil**

2. (8 pts) Create a NFA for a^*a , using the algorithm discussed in class.



3. (18 pts) Consider the following NFA.

- a. (3 pts) Does it accept the string "aa"? List a possible sequence of state transitions (e.g., 1,2,3) leading to acceptance / rejection of "aa".

Yes: 1,3,4,2

- b. (15 pts) Convert the NFA to a DFA using the subset construction algorithm discussed in class. Be sure to label each state in the DFA with the corresponding state(s) in the NFA.

NFA	DFA resulting from subset construction