

COMP 4081
Exam 1
Fall 2014

Name: _____,
Last name First name

Rules:

- No potty breaks.
- Turn off cell phones/devices.
- Closed book, closed note, closed neighbor.
- WEIRD! Do not write on the backs of pages. If you need more pages, ask me for some.

Reminders:

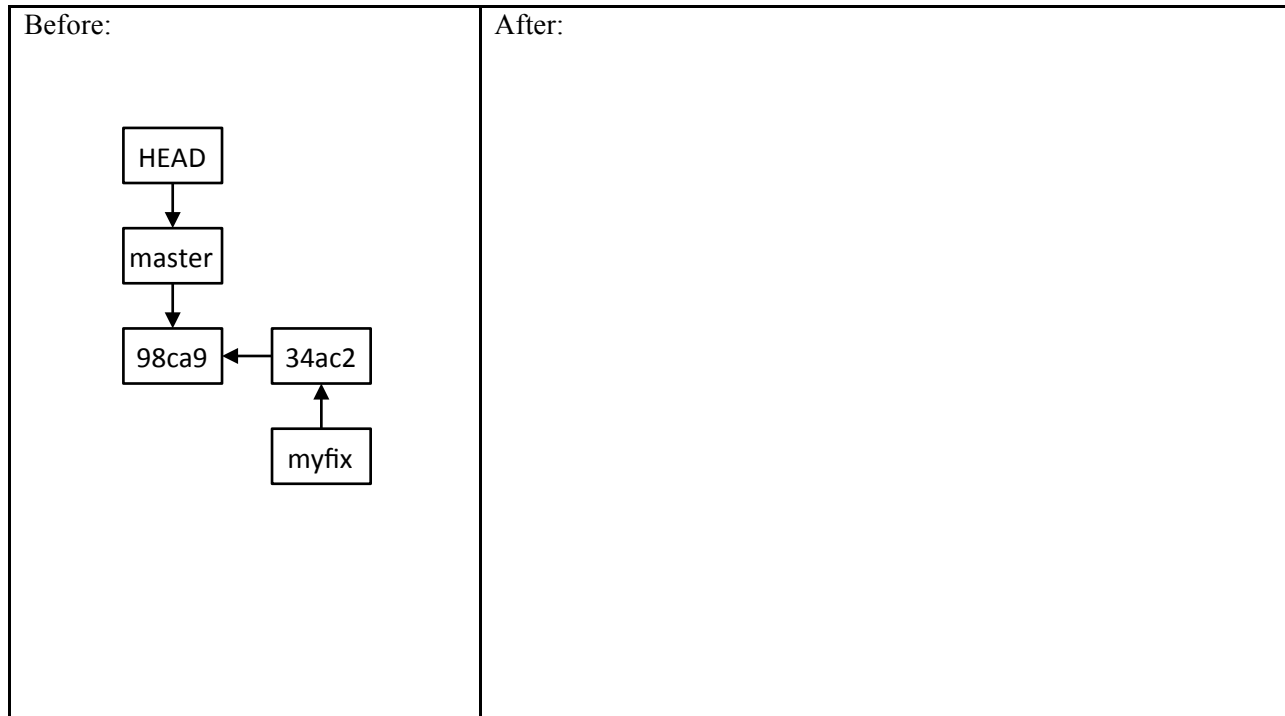
- Verify that you have all pages.
- Don't forget to write your name.
- Read each question carefully.
- Don't forget to answer every question.

1. [3pts] The Git **clone** command does which of the following?
 - a. Creates a working directory
 - b. Makes a local copy of the repository
 - c. Commits a new branch
 - d. a and b
 - e. a, b, and c

2. [3pts] Which Git command changes where the HEAD pointer points and modifies the contents of the working directory?
 - a. checkout
 - b. merge
 - c. mv
 - d. pull
 - e. None of the above

3. [3pts] Which one of the following is not part of the data structure of a Git repository?
 - a. Body element
 - b. Branch pointer
 - c. Commit object
 - d. HEAD pointer
 - e. None of the above (i.e., they are all parts)

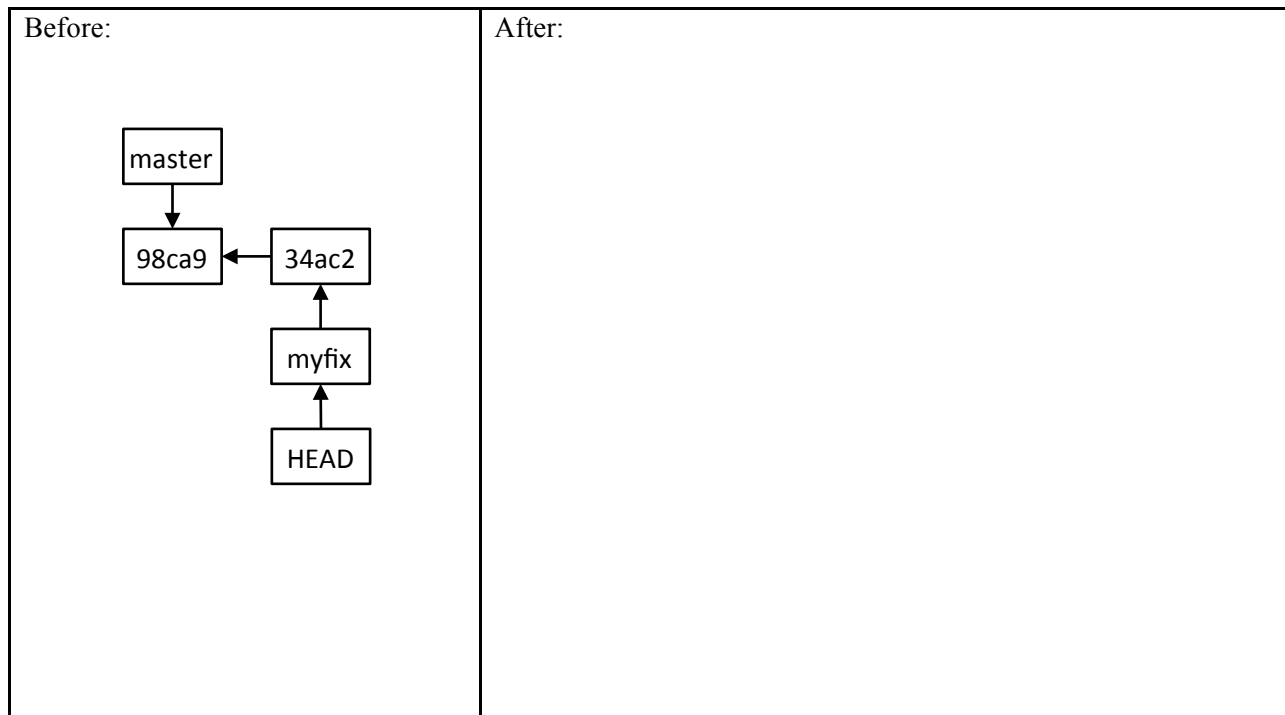
4. [8pts] Draw the state of the pictured repository after a Git **commit** operation (make up a hash).



5. [8pts] Draw the state of the pictured repository after running the following commands.

```
$ git checkout master
```

```
$ git merge myfix
```



6. [8pts] Given the Rails MVC architectural diagram below, label each component.

a. _____

b. _____

c. _____

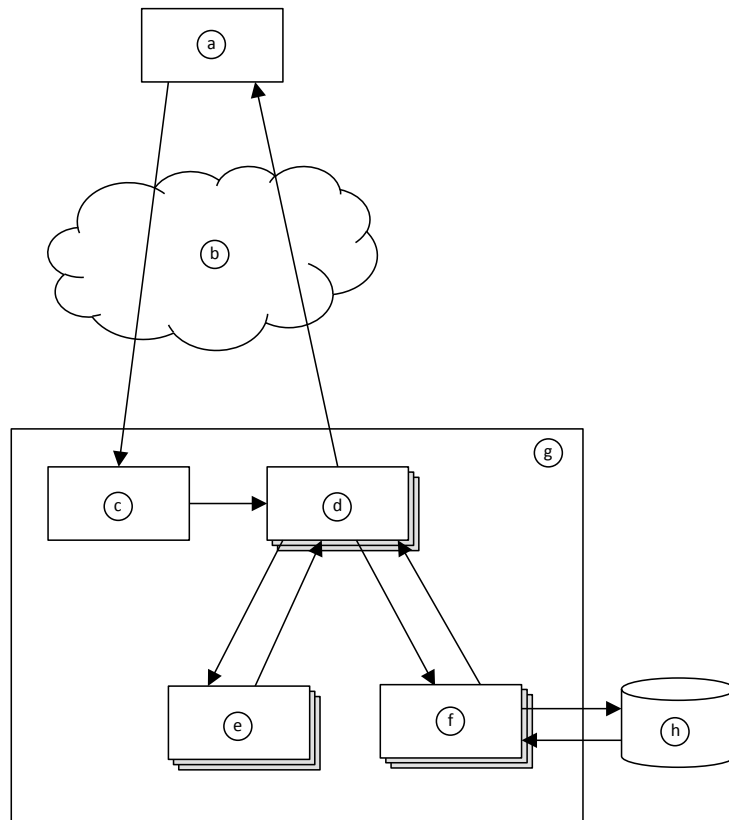
d. _____

e. _____

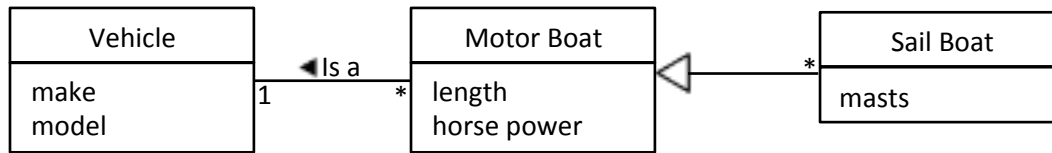
f. _____

g. _____

h. _____



13. [3pts] Name three problems with this domain model (esp. with respect to class diagram notation).



14. [3pts] Which of the following is meant by *software engineering process*?

- a. A structure imposed on the development of a software product; for example, developing iteratively and incorporating best practices might be ingredients in an SE process
- b. Something developers use to accomplish a goal during a project; for example, Git is an SE process for configuration management
- c. Something developers do to accomplish a goal during a project; for example, planning poker is an SE process for estimation
- d. A running instance of a program; for example, a UNIX process is an SE process
- e. None of the above

15. [3pts] An empirical process-control model iterates between _____.

- a. design and implementation
- b. requirements gathering and design
- c. user studies and testing
- d. feedback and adaptation
- e. None of the above

Figures

Address	Rent	Bedrooms	Bathrooms	Landlord	Phone
113 Cooper St, Memphis	\$988.00	2	2.0	C. Montgomery Burns	555-455-8777
200 Houston Levee, Cordova	\$1,100.00	2	2.5	Hubert J. Farnsworth	555-922-5757
900 Madison Ave, Memphis	\$3,500.00	4	6.5	C. Montgomery Burns	555-455-8777
4608 Walnut Grove, Memphis	\$2,500.00	3	2.0	Thurston Howell III	555-233-3232
301 Front St, Memphis	\$5,000.00	5	4.5	Thurston Howell III	555-233-3232

[New Rental](#)

Figure 1. Index page for rental-property web app.

Address: 900 Madison Ave, Memphis

Rent: 3500.0

Bedrooms: 4

Bathrooms: 6.5

Landlord: C. Montgomery Burns

Phone: 555-455-8777

[Edit](#) | [Back](#)

Figure 2. Show-rental page for rental-property web app.

```

$ rake routes
  Prefix Verb  URI Pattern          Controller#Action
  rentals GET   /rentals(.:format)  rentals#index
                    POST  /rentals(.:format)  rentals#create
  new_rental GET  /rentals/new(.:format) rentals#new
  edit_rental GET  /rentals/:id/edit(.:format) rentals#edit
  rental GET   /rentals/:id(.:format) rentals#show
                    PATCH /rentals/:id(.:format) rentals#update
                    PUT   /rentals/:id(.:format) rentals#update
                    DELETE /rentals/:id(.:format) rentals#destroy

```

Figure 3. Result of "rake routes" command for rental-property web app.

```

1  # == Schema Information
2  #
3  # Table name: rentals
4  #
5  # id          :integer          not null, primary key
6  # address     :string(255)
7  # rent        :decimal(, )
8  # bedrooms    :integer
9  # bathrooms   :float
10 # landlord    :string(255)
11 # phone       :string(255)
12 # created_at  :datetime
13 # updated_at  :datetime
14 #
15
16 class Rental < ActiveRecord::Base
17 end

```

Figure 4. Rental-property web app file: app/models/rental.rb

```

1 ▼ class RentalsController < ApplicationController
2   def index
3     @rentals = Rental.all
4   end
5
6   def show
7     # YOUR ANSWER HERE
8   end
9
10  def new
11    @rental = Rental.new
12  end
13
14  def edit
15    @rental = Rental.find(params[:id])
16  end
17
18 ▼ def create
19   @rental = Rental.new(rental_params)
20 ▼   respond_to do |format|
21 ▼     if @rental.save
22       format.html { redirect_to @rental, notice: 'Rental was successfully created.' }
23       format.json { render action: 'show', status: :created, location: @rental }
24 ▼     else
25       format.html { render action: 'new' }
26       format.json { render json: @rental.errors, status: :unprocessable_entity }
27     end
28   end
29 end
... and so on ...

```

Figure 5. Rental-property web app file: app/controllers/rentals_controller.rb

```

1 <h1>Listing rentals</h1>
2
3 <table>
4   <thead>
5     <tr>
6       <th>Address</th>
7       <th>Rent</th>
8       <th>Bedrooms</th>
9       <th>Bathrooms</th>
10      <th>Landlord</th>
11      <th>Phone</th>
12      <th></th>
13      <th></th>
14      <th></th>
15    </tr>
16  </thead>
17
18  <tbody>
19    <%= @rentals.each do |rental| %>
20      <tr>
21        <td><%= rental.address %></td>
22        <td style="text-align: right;"><%= number_to_currency(rental.rent) %></td>
23        <td style="text-align: right;"><%= rental.bedrooms %></td>
24        <td style="text-align: right;"><%= rental.bathrooms %></td>
25        <td><%= rental.landlord %></td>
26        <td><%= rental.phone %></td>
27        <td><%= link_to 'Show', rental %></td>
28        <td><%= link_to 'Edit', edit_rental_path(rental) %></td>
29        <td><%= link_to 'Destroy', rental, method: :delete, data: { confirm: 'Are you sure?' } %>
30      </td>
31    </tr>
32    <%= end %>
33  </tbody>
34 </table>
35
36 <br>
37 <%= link_to 'New Rental', new_rental_path %>

```

Figure 6. Rental-property web app file: app/views/index.html.erb