1. What are the differences between a text file and a binary file in the context of Git?
2. What is a repository in the context of version control?
3. What is the difference between a local and a remote repository in Git?
4. How do you clone a repository in Git?
5. What is the purpose of a .gitignore file?
6. What is a commit in Git and why is it important?
7. How do you check the status of your repository in Git?
8. What is a pull request in Github, and how is it used?
9. What does git merge do, and when would you use it?
10. How do you resolve conflicts when merging branches in Git, and how can you avoid them?
11. What is the difference between git pull and git fetch?
12. How do you revert changes in Git?
13. How do you view the commit history of a Git repository?
14. What is a Git branch, and how do you create and merge branches?
15. What is the difference between a normal repository and a bare repository?
16. Using the given diagram, answer the following questions:
    a. How do you create another commit in the feature branch?
    b. What are the steps to create a new branch pointing to the latest snapshot on the master branch?
    c. How do you pull the latest changes from the remote repository to your local repository?
    d. How do you write the command line to push your code to the remote repository?
    e. Does the master branch contain all the source code? Why?

f. How do you write the command line to merge the feature branch into the master branch?

17. (True/False) Ruby has both primitive and object data types.

18. (True/False) puts "#{'a' <=> 'b'}" #=> This will print 1

19. (True/False) For small integers, the mathematical value is encoded in the reference value.

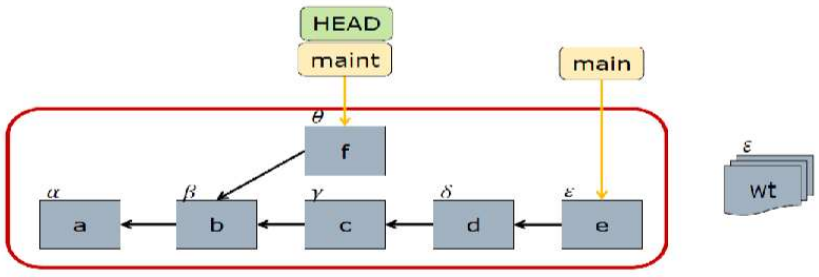
20. (True/False) In Ruby, nil values evaluates to false.

21. What is the output of the following code?

```
colors = ["red", "green", "blue"].freeze
puts colors.length
colors[1] = "yellow"
```

```
result=('a'...'f').to_a.reduce('') do |text,current|
   text + current.to_s.upcase
end
puts result
```

22. Use the given diagram to answer the following questions:



a. What is the command line to merge the maint branch into the main branch?

b. Draw the updated diagram showing the repository state after the merge, assume there are no conflicts.

23. Write a regex pattern to match a valid method name. A valid Ruby method name must start with a lowercase letter and can be followed by letters, digits, or underscores.
24. Define a vehicle class in ruby with an attribute make and a method info that prints make instance varaible. Then, define a Car class that inherits from Vehicle. The Car class should have an additional attribute model and override the info method to print "This is a [make] car, model [model]." Create an instance of Car with the make "Toyota" and model "Camry," and call the info method.
25. What will be the output of the following Ruby code snippet?

    x, y = -2, 5; puts "y/x=#{y/x}"

26. What will be the output of the following Ruby code snippet?

    array1 = [10,20,30]
    array2 = (5..8).to_a
    array1.concat(array2)
    array1.shift
    print array1

27. What will be the output of the following Ruby code snippet?

    array = [1,2,'a', 'FinalExam', 'Web']
    array.map! Do |item|
    if item.class != Integer
    item.length

else

item

end

end

print array

28. What will be the output of the following Ruby code snippet?

    Params = {
    'id' => 42,
    'name' => 'Michael'
    'email' => 'michael@osu.edu' }
    Puts params['email'].include?('@osu')

29. Create an email address that will match this regular expression

\A[a-zA-Z]+_?[a-zA-Z]+\.\d+@osu.edu\Z

30. For each of the following, write out the corresponding language explicitly (i.e., as a set of strings):
    a. cat|dog|fish
    b. (h|H)ello
    c. R(uby|ails)
    d. (G|g)r(a|e)y
31. Write the language defined by: Gr[ae]y, 0[xX][0-9a-fA-F], and [Qq]][^u]
32. Write a language consisting of strings that: Contain only letters, numbers, and _, Start with a letter, Do not contain 2 consecutive _'s, and do not end with _.
    a. Write the corresponding RE.
    b. Write the corresponding FSA
33. Convert "Man" to base64.