CIS 285: Software Engineering Tools

University of Michigan – Dearborn

Fall 23 Mid-Term Exam

Time: 1 hr. 45 minutes. Total: 100 pts.

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1. Use Git commands and Github.com to realize the following process. The exam .zip file contains a java file quraticsolver.java.
   1. Create a new local repository
   2. Add quraticsolver.java to the repository
   3. Create a new gitHub repository e.g Midterm
   4. Push local to the new GitHub repository
   5. Create a local branch ‘YourName’
   6. Under ‘YourName’ branch, make whatever change in quraticsolver.java (you may just change integer a, b and c’s value)
   7. Compare the difference of the file content and then commit
   8. Push ‘YourName’ branch to GitHub
   9. Approve and merge the pull request on gitHub
   10. Synchronize local Master with gitbub

* List all the commands in the process. Your command must follow the same order as the process. 10 pts
* Copy/Paste your github repository url here (Don’t make any change to the github repository after the exam. It is a cheat if you do so) 10 pts

1. Continuing in question 1, Use VS Code, GitHub, and Jenkins to realize the following scenario.
   1. Open VS Code and navigate to quraticsolver’s folder
   2. Under local master branch, modify quraticsolver.java (You may just change three integers’ value)
   3. Commit to local master, then push to github
   4. login to

http://141.215.80.187:8090

user name: cis285

password: cis285

* 1. Create a new freestyle project with the name “YourName\_quraticsolver”
  2. Config the project to connect your Midterm github repository
  3. Schedule Build Triggers to poll SCM every minute.
  4. Use the following command in Build/Execute Windows batch command

javac quraticsolver.java

java quraticsolver

* Repeat step b and c, then have 2 successful builds in Jenkins. Provide these two Console Output screenshots (Don’t make any change to your Jenkins project after the exam. It is a cheat to do so) 20 pts

1. Suppose a software project’s unadjusted function points T = 36 and S(Fi) = 50. Average productivity for the software systems of this type is 6.8 FP/pm and burdened labor rate is $8,000 per month.
   1. Calculate function point 5pts
   2. Calculate total project cost in dollar value 5pts
   3. Calculate total estimated effort in pm 10pts
2. Assume you are a software project manager and that you’ve been asked to computer earned value statistics for a small software project. At the time that you’ve been asked to do the earned value analysis, 16 tasks have been completed. However, the project schedule indicates that 18 tasks should have been completed. The following scheduling data (in person-days) are available: Compute the schedule variance, cost variance SPI, CPI, and CSI.

20 pts

|  |  |  |
| --- | --- | --- |
| Task | Planned Effort | Actual Effort |
| 1 | 12 | 12 |
| 2 | 10 | 11 |
| 3 | 15 | 18 |
| 4 | 7 | 9 |
| 5 | 8 | 9 |
| 6 | 18 | 20 |
| 7 | 8 | 11 |
| 8 | 4 | 5 |
| 9 | 11 | 10 |
| 10 | 5 | 3 |
| 11 | 7 | 6 |
| 12 | 14 | 14 |
| 13 | 15 | 15 |
| 14 | 9 | 12 |
| 15 | 8 | 6 |
| 16 | 7 | 8 |
| 17 | 13 |  |
| 18 | 4 |  |

1. Create a Katalon Testing project to automate flight search on aa.com. 20 pts
   1. Create a test case
   2. Record and catch objects in aa.com the process to search round trip flight
      1. From DTW
      2. To NYC
      3. Depart 11/05/2023
      4. Return 11/08/2023
      5. Number of passengers 4
      6. Click on Search
   3. Clean the task by removing unnecessary steps
   4. Rename object whose name is long or contain spaces or you believe not appropriate
   5. Define and initialize variables to represent FromCity, ToCity, DepartureDate, ReturnDate and Number of Passengers
   6. Add attached FlightData.xlsx to Data file
   7. Add For Loop in the scripts to read data from the Excel and do the search.
   8. Copy and paste your final scripts below