UMKC

Spring-2017

Software Methods and Tools

Assignment-7

(Subversion)

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1. Objective

The main aim of this assignment is to work with Subversion commands and operations. Includes creating a repository, organizing the repository, creating a working copy, and the basic check-in and checkout operations

2. Subversion Initial Setup

To proceed with the tasks of Subversion initially the subversion is installed. Then command window is opened and below command is executed to edit Subversion messages in Notepad.

```
Q:\Desktop\SnakeGameSubversion>set SVN_EDITOR=C:\Windows\System32\notepad.exe
```

3. Subversion Commands and Operations

3.1 Task 1: **Create a new repository, and create a project named "Snake" at the root of your repository. Then create the following folders under "Snake": "trunk", "branches", and "tags". Submit a screenshot that shows the content the "Snake" folder.**

1. To perform above task first the repository is created as shown below using "**svnadmin create**" command

```
Q:\Desktop\SnakeGameSubversion>set SVN_EDITOR=C:\Windows\System32\notepad.exe

Q:\Desktop\SnakeGameSubversion>svnadmin create Q:\Desktop\SnakeGameSubversion\repos

Q:\Desktop\SnakeGameSubversion>
```

2. Once the repo is created project Snake is created under root of repository using **"svn import".** As shown below the committed revision number is '1'.

```
Q:\Desktop\SnakeGameSubversion>svn import Snake file:///Desktop/SnakeGameSubversion/repos/Snake

Log message unchanged or not specified
(a)bort, (c)ontinue, (e)dit:
c
Committing transaction...
Committed revision 1.
```
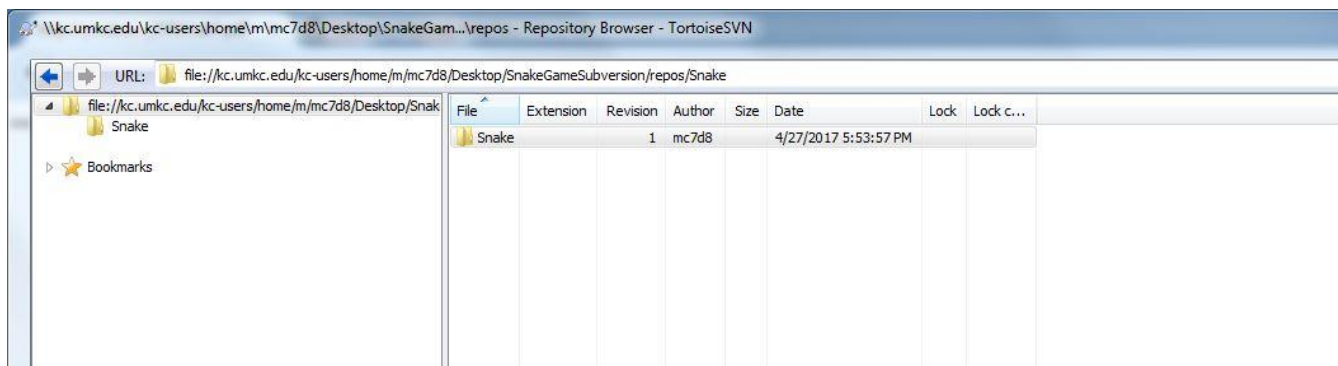
3. Further to create folders "trunk", "branches", and "tags" under Snake, first working copy has to be created as shown below using **"svn checkout file:///…".**

Next using **"svn mkdir"** command the three folder are created under WorkingCopy. Also we can see that committed revision is updated to '2'.

4. Below is the screenshot which shows the content of Snake folder, for which I used **"svn list -v file:///…"** command.
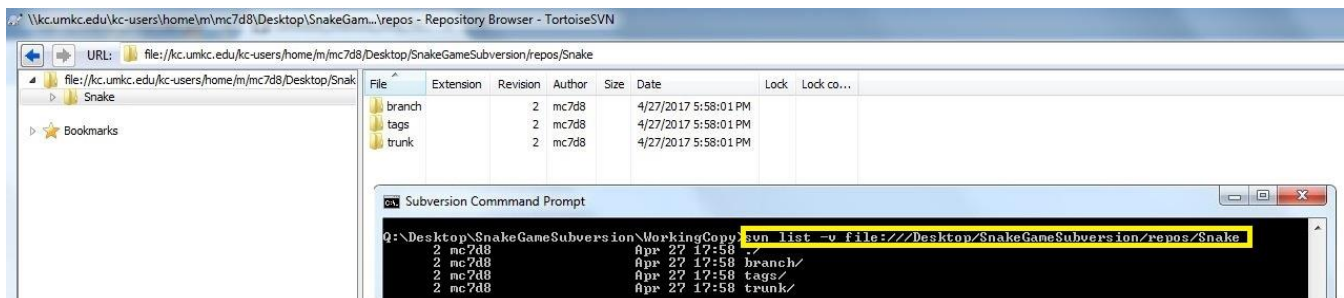
3.2 Task 2: Download the source code from https://github.com/PSNB92/SnakeRemake. Put the unzipped source code (i.e. *.java) of the Snake application into the "trunk" folder of the repository. Keep the original file structure (i.e. org.psnbtech.*). Submit another screenshot that shows the content of the source code folder in the repository

To perform above task first the code is downloaded from given link. To maintain the same structure as org.psnbtech.*, first the folder structure is created in trunk folder as shown below.

Once the folders are created code is copied into psnbtech and the same is added using **"svn add"** as shown below

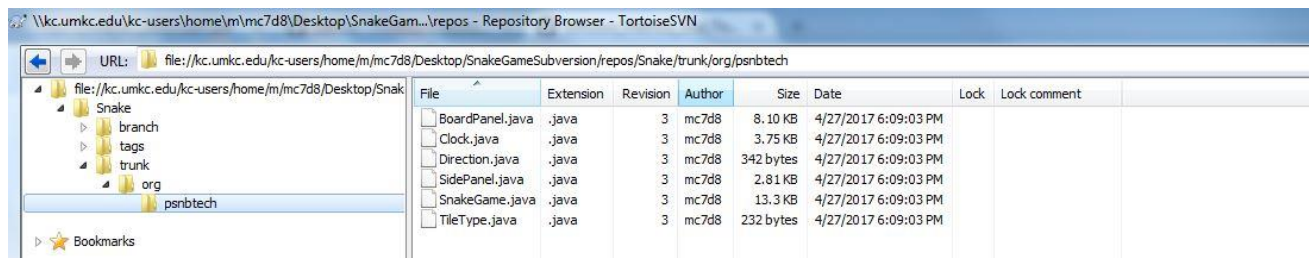After adding code to trunk folder, the same is updated using **"svn commit"** where revision number is updated to '3' as shown below.

The below screenshot shows the content of the source code folder in the repository which is extracted using **"svn list -v file:///..."**.

3.3 Task 3: **Create three working copies of the Snake application. You can do this by checking out the project "Snake/trunk" into three different folders, one for each developer (e.g. Bill, Mary, and Ben). The folders you created should be named as SnakeBill, SnakeMary, and SnakeBen.**

To perform this task I used **"svn checkout file:///...."** command to copy the project into 3 folders, SnakeBill, SnakeMary, and SnakeBen as shown below.

a. *Bill's Copy*

```
Q:\Desktop\SnakeGameSubversion>svn checkout file:///Desktop/SnakeGameSubversion/repos/Snake SnakeBill
A    SnakeBill\branch
A    SnakeBill\tags
A    SnakeBill\trunk
A    SnakeBill\trunk\org
A    SnakeBill\trunk\org\psnbtech
A    SnakeBill\trunk\org\psnbtech\BoardPanel.java
A    SnakeBill\trunk\org\psnbtech\Clock.java
A    SnakeBill\trunk\org\psnbtech\Direction.java
A    SnakeBill\trunk\org\psnbtech\SidePanel.java
A    SnakeBill\trunk\org\psnbtech\SnakeGame.java
A    SnakeBill\trunk\org\psnbtech\TileType.java
Checked out revision 3.
```

b. *Mary's Copy*

```
Q:\Desktop\SnakeGameSubversion>svn checkout file:///Desktop/SnakeGameSubversion/repos/Snake SnakeMary
A    SnakeMary\branch
A    SnakeMary\tags
A    SnakeMary\trunk
A    SnakeMary\trunk\org
A    SnakeMary\trunk\org\psnbtech
A    SnakeMary\trunk\org\psnbtech\BoardPanel.java
A    SnakeMary\trunk\org\psnbtech\Clock.java
A    SnakeMary\trunk\org\psnbtech\Direction.java
A    SnakeMary\trunk\org\psnbtech\SidePanel.java
A    SnakeMary\trunk\org\psnbtech\SnakeGame.java
A    SnakeMary\trunk\org\psnbtech\TileType.java
Checked out revision 3.
```

c. *Ben's Copy*

```
Q:\Desktop\SnakeGameSubversion>svn checkout file:///Desktop/SnakeGameSubversion/repos/Snake SnakeBen
A    SnakeBen\branch
A    SnakeBen\tags
A    SnakeBen\trunk
A    SnakeBen\trunk\org
A    SnakeBen\trunk\org\psnbtech
A    SnakeBen\trunk\org\psnbtech\BoardPanel.java
A    SnakeBen\trunk\org\psnbtech\Clock.java
A    SnakeBen\trunk\org\psnbtech\Direction.java
A    SnakeBen\trunk\org\psnbtech\SidePanel.java
A    SnakeBen\trunk\org\psnbtech\SnakeGame.java
A    SnakeBen\trunk\org\psnbtech\TileType.java
Checked out revision 3.
```

3.4 Task 4: Simulate the following events by performing the corresponding operations. After each event: (1) check the revision number of the SnakeGame.java file in the repository and in each working copy, and fill in the table below; (2) describe what problems (i.e. conflicts) you had in each event, and how you resolved them. (3) submit a screenshot showing the revision numbers of the Java files in Mary's working copy.

a. **EVENT #1: Ben made some changes to SnakeGame.java: (1) added a comment "//igore" at the end of Line 25, and a comment "//test" at the end of Line 30. Then Ben committed his changes to the repository.**

First Ben made changes in SnakeGame.java and committed respective changes in subversion using **"svn commit"** where the revision number of repository is updated to '4' as shown below.

Problem Faced: No problem Faced during execution of this Event.

Event	Repository	Bill	Mary	Ben
1	4	3	3	4
Description	As Ben made changes in his working copy on SnakeGame.java file and committed changes to repository. So, revision of SnakeGame.java in Ben's working copy and Repository is updated to '4'. But Bill and Mary's revision remains '3' as their copy is not synchronized repository.			

b. **EVENT #2: Mary synchronized her working copy with the repository.**

As part of this event Mary synchronized her working copy with repository using **"svn update"**, so her revision is updated to '4'.

Problem Faced: No problem Faced during execution of this Event.

Event	Repository	Bill	Mary	Ben
2	4	3	4	4
Description	The revision of SnakeGame.java in Repository is 4, so when Mary synchronizes her copy with repo her Revision is also updated to '4'.			

```
Q:\Desktop\SnakeGameSubversion\SnakeMary>svn update
Updating '.':
U    trunk\org\psnbtech\SnakeGame.java
Updated to revision 4.

Q:\Desktop\SnakeGameSubversion\SnakeMary>svn status -v
               4        4 mc7d8        .
               4        2 mc7d8        branch
               4        2 mc7d8        tags
               4        4 mc7d8        trunk
               4        4 mc7d8        trunk\org
               4        4 mc7d8        trunk\org\psnbtech
               4        3 mc7d8        trunk\org\psnbtech\BoardPanel.java
               4        3 mc7d8        trunk\org\psnbtech\Clock.java
               4        3 mc7d8        trunk\org\psnbtech\Direction.java
               4        3 mc7d8        trunk\org\psnbtech\SidePanel.java
               4        4 mc7d8        trunk\org\psnbtech\SnakeGame.java
               4        3 mc7d8        trunk\org\psnbtech\TileType.java
```

c. **EVENT #3: Bill made a change to SnakeGame.java: added a comment "//package missing." at the end of line 25. Bill resolved the conflicts, and committed his change to the repository.**

Further Bill made changes in SnakeGame.java at the same line where Ben made changes, and try to commit his changes using **"svn commit"** which resulted in conflict.

Problem Faced: When Bill tried to commit his changes to repository error is thrown as Bill not synchronized his repo before committing changes.

Resolution: To resolve this conflict first Bill has to check conflicts using **"svn update",** further 'e' is used to edit the file. Once Bill edited the file 'r' is used to resolve the conflicts.

Once the conflicts are resolved the changes are committed to repository and the revision is updated to '5'

```
Q:\Desktop\SnakeGameSubversion\SnakeBill>svn update
Updating '.':
C    trunk\org\psnbtech\SnakeGame.java
Updated to revision 4.
Summary of conflicts:
  Text conflicts: 1
Conflict discovered in file 'trunk\org\psnbtech\SnakeGame.java'.
Select: (p) postpone, (df) show diff, (e) edit file, (m) merge,
        (mc) my side of conflict, (tc) their side of conflict,
        (s) show all options: e
Select: (p) postpone, (df) show diff, (e) edit file, (m) merge,
        (r) mark resolved, (mc) my side of conflict,
        (tc) their side of conflict, (s) show all options: r
Resolved conflicted state of 'trunk\org\psnbtech\SnakeGame.java'
Summary of conflicts:
  Text conflicts: 0 remaining (and 1 already resolved)
```

Resolving conflicts

```
Q:\Desktop\SnakeGameSubversion\SnakeBill>svn commit

Log message unchanged or not specified
(a)bort, (c)ontinue, (e)dit:
c
Sending        trunk\org\psnbtech\SnakeGame.java
Transmitting file data .done
Committing transaction...
Committed revision 5.

Q:\Desktop\SnakeGameSubversion\SnakeBill>svn status -v
                4        4 mc7d8      .
                4        2 mc7d8      branch
                4        2 mc7d8      tags
                4        4 mc7d8      trunk
                4        4 mc7d8      trunk\org
                4        4 mc7d8      trunk\org\psnbtech
                4        3 mc7d8      trunk\org\psnbtech\BoardPanel.java
                4        3 mc7d8      trunk\org\psnbtech\Clock.java
                4        3 mc7d8      trunk\org\psnbtech\Direction.java
                4        3 mc7d8      trunk\org\psnbtech\SidePanel.java
                5        5 mc7d8      trunk\org\psnbtech\SnakeGame.java
                4        3 mc7d8      trunk\org\psnbtech\TileType.java
```

```java
public class SnakeGame extends JFrame {

    /**
     * The Serial Version UID.
     */
    private static final long serialVersionUID = 6678292058307426314L;

    /**
<<<<<<< .mine
     * The number of milliseconds that should pass between each frame.//package missing.
=======
     * The number of milliseconds that should pass between each frame.//igore
>>>>>>> .r4
     */
    private static final long FRAME_TIME = 1000L / 50L;

    /**
     * The minimum length of the snake. This allows the snake to grow//test
     * right when the game starts, so that we're not just a head moving
     * around on the board.
     */
```
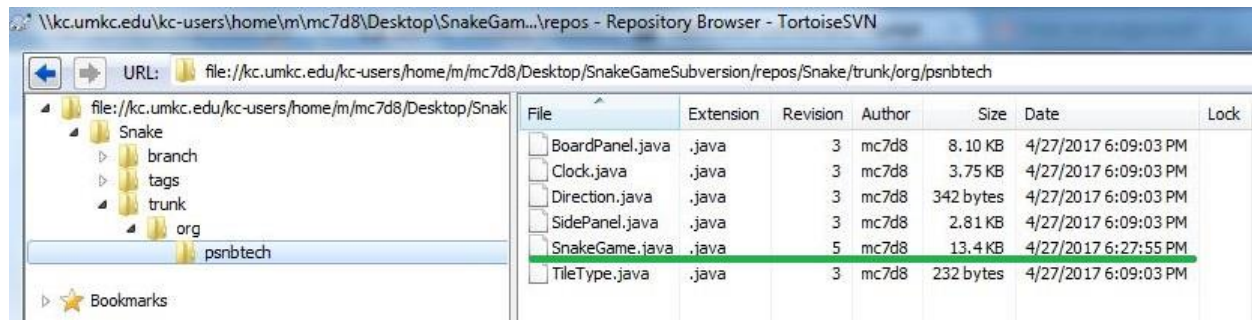
Event	Repository	Bill	Mary	Ben
3	5	5	4	4
Description	As Bill made changes to SnakeGame.java and tried to commit changes without Synchronizing with repository, so conflicts are faced. Once conflicts are resolved and committed changes, both Repository revision and Bill's revision of SnakeGame.java is updated to '5'			

d. **EVENT #4: Bill changed the file, Clock.java (e.g. removed the fifth line of code). He then committed his change to the repository.**

As part of this event Bill made changes to Clock.java and committed changes to repository, so revision is updated to '6'. But the revision of SnakeGame.java remains same i.e, '5'.

Problem Faced: No problem Faced during execution of this Event.

Event	Repository	Bill	Mary	Ben
4	5	5	4	4
Description	Even though Bill made changes in Clock.java and committed then to repository, the Revision of SnakeGame.java in repository and Bill working copy remains same as '5'			

e. **EVENT #5: Ben synchronized his working copy with the repository.**

As current revision of SnakeGame.java in repository is '5', so when Ben synchronizes his working copy with repository, revision of SnakeGame.java is updated to '5'. But revision of Clock.java is updated to '6'.

Problem Faced: No problem Faced during execution of this Event.

Event	Repository	Bill	Mary	Ben
4	5	5	4	5
Description	Ben synchronized his working copy with repository, so revision of SnakeGame.java Is updated from 4 to 5. Also revision of Clock.java is updated to '6' which was committed by Bill in Event #3.			

```
Q:\Desktop\SnakeGameSubversion>cd SnakeBen

Q:\Desktop\SnakeGameSubversion\SnakeBen>svn update
Updating '.':
U    trunk\org\psnbtech\SnakeGame.java
U    trunk\org\psnbtech\Clock.java
Updated to revision 6.

Q:\Desktop\SnakeGameSubversion\SnakeBen>svn status -v
                6        6 mc7d8      .
                6        2 mc7d8      branch
                6        2 mc7d8      tags
                6        6 mc7d8      trunk
                6        6 mc7d8      trunk\org
                6        6 mc7d8      trunk\org\psnbtech
                6        3 mc7d8      trunk\org\psnbtech\BoardPanel.java
                6        6 mc7d8      trunk\org\psnbtech\Clock.java
                6        3 mc7d8      trunk\org\psnbtech\Direction.java
                6        3 mc7d8      trunk\org\psnbtech\SidePanel.java
                6        5 mc7d8      trunk\org\psnbtech\SnakeGame.java
                6        3 mc7d8      trunk\org\psnbtech\TileType.java
```

f. **EVENT #6: Mary and Bill both synchronized their working copies with the repository.**

As current revision of SnakeGame.java in repository is '5', when Mary and Bill synchronizes their working copy with repository, revision of Mary's SnakeGame.java is updated to '5' and Bill's revision remains same as it is already up-to-date. But revision of Clock.java is updated to '6' in both Bill's and Mary's working copy.

Problem Faced: No problem Faced during execution of this Event.

Event	Repository	Bill	Mary	Ben
4	5	5	5	5
Description	Current Revision of SnakeGame.java is '5'. Revision of Mary's SnakeGame.java is updated to '5'. Revision of Bill's SnakeGame.java remains same as it is already '5' Revision of Clock.java in Mary and Bill's working copy is updated to '6'.			

Mary's Revision:

```
Q:\Desktop\SnakeGameSubversion>cd SnakeMary

Q:\Desktop\SnakeGameSubversion\SnakeMary>svn update
Updating '.':
U    trunk\org\psnbtech\Clock.java
U    trunk\org\psnbtech\SnakeGame.java
Updated to revision 6.

Q:\Desktop\SnakeGameSubversion\SnakeMary>svn status -v
                6        6 mc7d8        .
                6        2 mc7d8        branch
                6        2 mc7d8        tags
                6        6 mc7d8        trunk
                6        6 mc7d8        trunk\org
                6        6 mc7d8        trunk\org\psnbtech
                6        3 mc7d8        trunk\org\psnbtech\BoardPanel.java
                6        6 mc7d8        trunk\org\psnbtech\Clock.java
                6        3 mc7d8        trunk\org\psnbtech\Direction.java
                6        3 mc7d8        trunk\org\psnbtech\SidePanel.java
                6        5 mc7d8        trunk\org\psnbtech\SnakeGame.java
                6        3 mc7d8        trunk\org\psnbtech\TileType.java
```

Bill's Revision:

```
Q:\Desktop\SnakeGameSubversion>cd SnakeBill

Q:\Desktop\SnakeGameSubversion\SnakeBill>svn update
Updating '.':
At revision 6.

Q:\Desktop\SnakeGameSubversion\SnakeBill>svn status -v
                6        6 mc7d8        .
                6        2 mc7d8        branch
                6        2 mc7d8        tags
                6        6 mc7d8        trunk
                6        6 mc7d8        trunk\org
                6        6 mc7d8        trunk\org\psnbtech
                6        3 mc7d8        trunk\org\psnbtech\BoardPanel.java
                6        6 mc7d8        trunk\org\psnbtech\Clock.java
                6        3 mc7d8        trunk\org\psnbtech\Direction.java
                6        3 mc7d8        trunk\org\psnbtech\SidePanel.java
                6        5 mc7d8        trunk\org\psnbtech\SnakeGame.java
                6        3 mc7d8        trunk\org\psnbtech\TileType.java
```