**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI**

Batch No. :

**DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION SYSTEMS**

**Artificial Intelligence (BITS F444/ CS F407)**

**I Semester 2017-18**

**Programming Assignment-3**

**Coding Details**

**(October 26, 2017)**

*Instruction: Type the details precisely and neatly*

1. ID : 2015A7PS0078P

Name : Naveen Venkat

1. Mention the names of Submitted files :
   1. driver.py
   2. modules.py
   3. config.py
2. Total number of submitted files: 3
3. Name of the folder : 2015A7PS0078P
4. Have you checked that all the files you are submitting have your name in the top? yes
5. Have you checked that all the files you are submitting are in the folder as specified in 4 (and no subfolder exists)? yes
6. Problem formulation
   1. List of variables (Specify all variables):

For each course Ci, the following will be added:

CiLj for each lecture hour  
 CiT for tutorial  
 CiP1 and CiP2 for practical sections 1 and 2 respectively

* 1. Value domains of variables (Also list the variables against each value domain correspondingly)

For the variables corresponding to the lectures,  
domain(CiLj) = ( {“mon”, “tue”, “wed”, “thu”, “fri”} x {1,2,3,4,5,6,7} x {h1,h2,h3,h4,h5} )  
 U ( {“sat”} x {1,2,3,4} x {h1,h2,h3,h4,h5} )  
For tutorial variables,  
domain(CiT) = ( {“mon”, “tue”, “wed”, “thu”, “fri”} x {1,2,3,4,5,6,7} x {h1,h2,h3,h4,h5} )  
 U ( {“sat”} x {1,2,3,4} x {h1,h2,h3,h4,h5} )  
For practical variables,  
domain(CiP1) = domain(CiP2) = ( {“mon”, “tue”, “wed”, “thu”, “fri”} x {1,2,3,4,5,6,7} x {l1,l2,l3,l4,l5} ) U ( {“sat”} x {1,2,3,4} x {l1,l2,l3,l4,l5} )

* 1. Constraint graph : Draw the constraint graph neatly on a separate A3 paper. Encircle the variables to represent the nodes and label each edge with appropriate constraints numbered from 1 to 11 as mentioned in the problem specification document. Upload the scanned copy of the above hand drawn constraint graph as file **constraintGraph.pdf**.

Have you uploaded the scanned copy as above? No

* 1. Specify the number of nodes in your constraint graph. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. Specify the number of edges in your constraint graph. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  3. How do you use the package information in constructing the constraint graph?
  4. How do you use professor-courses packages in your constraint graph?

To determine the constraints in the constraint graph.

1. Data structure used
   1. Constraint graph node structure:

Each node is an independent variable, referenced by its name (eg. C1L1, C3T etc.)

* 1. Constraint graph edge structure:  
     Each edge will be a list of constraints
  2. Constraint graph (Adjacency list/ adjacency matrix/ any other(specify)

Adjacency matrix

1. DFS + backtracking technique details
   1. Variable ordering used: -
   2. Node structure for DFS: -

* 1. Method for assignment of a value to a variable and backtracking: -
  2. How is edge node of your adjacency list (constraint graph) useful in deciding upon which constraint module( or modules) to use for testing the violation of the constraints while you assign a value to a variable?
  3. Total number of nodes generated for assignment of values to all variables: -
  4. Write the statistics here as asked

R1 = R2 = R3 = -

R4 = R5=

* 1. Code status (implemented fully/ partially/ not done) Parially

1. DFS+ Backtracking using constraint propagation:
   1. Explain the method for constraint propagation. How are you updating the value domains? What do you do with the value domains of the variables when you backtrack while performing DFS?
   2. Total number of nodes generated using the above technique
   3. Write the statistics here as asked

R6 = R7 = R8 =

1. Code status (implemented fully/ partially/ not done)

1. Comparative analysis

Fill in the following information

|  |  |  |
| --- | --- | --- |
|  | DFS+BT | DFS+BT+Constraint propagation |
| Average number of nodes created |  |  |
| Average time taken |  |  |

1. Output files
   1. Created the output files testcase#\_DFS\_BT.txt and testcase#\_DFS\_BT\_CP.txt (yes/ No):
   2. Have named the files according to the specifications?(yes/No):
   3. Created the file constraintGraph.pdf (yes/no):
2. Compilation Details:
   1. Code Compiles (Yes/ No): No
   2. Mention the .py files that do not compile: Modules.py
   3. Any specific function that does not compile: constructCG()
   4. Ensured the compatibility of your code with the specified Python version? yes
   5. Instructions for compilation of your files mentioning the multi file compilation process used by you (We may use the replica of these for compiling your files while evaluating your code)  
        
      Please run the following command:  
      python driver.py  
        
      Enter the name of the testcase file. The test case file should be put inside the folder where driver.py resides.
3. Driver Details: Does it take care of the options specified earlier(yes/no): no
4. Execution status (describe in maximum 2 lines)

The code does not execute to provide the required output.

1. Declaration: I, Naveen Venkat declare that I have put my genuine efforts in creating the python code for the given programming assignment and have submitted only the code developed by me. I have not copied any piece of code from any source. If the code is found plagiarized in any form or degree, I understand that a disciplinary action as per the institute rules will be taken against me and I will accept the penalty as decided by the department of Computer Science and Information Systems, BITS, Pilani.

ID 2015A7PS0078P Name: Naveen Venkat

Date: 26/10/17

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