

# Results and Crash Test-Consistency Report

This document contains the inputs, outputs and the explanations of four test cases in the program. The following picture is the sample of input files used as test cases in the program.

	Category	Preference1	Preference2	Preference3	Preference4	Preference5	Preference6	Preference7	Preference8	Preference9	Preference10	Preference11	Preference12
Pos1	x1	F00C_137	F00C_138	F00C_139	F00C_140	F00C_141	F00C_142	F00C_143	F00C_144	F00C_145	F00C_146	F00C_147	F00C_148
Pos2	x2	F00C_138	F00C_139	F00C_140	F00C_141	F00C_142	F00C_143	F00C_144	F00C_145	F00C_146	F00C_147	F00C_148	F00C_149
Pos3	x3	F00C_139	F00C_140	F00C_141	F00C_142	F00C_143	F00C_144	F00C_145	F00C_146	F00C_147	F00C_148	F00C_149	F00C_150
Pos4	x4	F00C_140	F00C_141	F00C_142	F00C_143	F00C_144	F00C_145	F00C_146	F00C_147	F00C_148	F00C_149	F00C_150	F00C_151
Pos5	x5	F00C_141	F00C_142	F00C_143	F00C_144	F00C_145	F00C_146	F00C_147	F00C_148	F00C_149	F00C_150	F00C_151	F00C_152
Pos6	x6	F00C_142	F00C_143	F00C_144	F00C_145	F00C_146	F00C_147	F00C_148	F00C_149	F00C_150	F00C_151	F00C_152	F00C_153
Pos7	x7	F00C_143	F00C_144	F00C_145	F00C_146	F00C_147	F00C_148	F00C_149	F00C_150	F00C_151	F00C_152	F00C_153	F00C_154
Pos8	x8	F00C_144	F00C_145	F00C_146	F00C_147	F00C_148	F00C_149	F00C_150	F00C_151	F00C_152	F00C_153	F00C_154	F00C_155
Pos9	x9	F00C_145	F00C_146	F00C_147	F00C_148	F00C_149	F00C_150	F00C_151	F00C_152	F00C_153	F00C_154	F00C_155	F00C_156
Pos10	x10	F00C_146	F00C_147	F00C_148	F00C_149	F00C_150	F00C_151	F00C_152	F00C_153	F00C_154	F00C_155	F00C_156	F00C_157
Pos11	x11	F00C_147	F00C_148	F00C_149	F00C_150	F00C_151	F00C_152	F00C_153	F00C_154	F00C_155	F00C_156	F00C_157	F00C_158
Pos12	x12	F00C_148	F00C_149	F00C_150	F00C_151	F00C_152	F00C_153	F00C_154	F00C_155	F00C_156	F00C_157	F00C_158	F00C_159
Pos13	x13	F00C_149	F00C_150	F00C_151	F00C_152	F00C_153	F00C_154	F00C_155	F00C_156	F00C_157	F00C_158	F00C_159	F00C_160
Pos14	x14	F00C_150	F00C_151	F00C_152	F00C_153	F00C_154	F00C_155	F00C_156	F00C_157	F00C_158	F00C_159	F00C_160	F00C_161
Pos15	x15	F00C_151	F00C_152	F00C_153	F00C_154	F00C_155	F00C_156	F00C_157	F00C_158	F00C_159	F00C_160	F00C_161	F00C_162
Pos16	x16	F00C_152	F00C_153	F00C_154	F00C_155	F00C_156	F00C_157	F00C_158	F00C_159	F00C_160	F00C_161	F00C_162	F00C_163
Pos17	x17	F00C_153	F00C_154	F00C_155	F00C_156	F00C_157	F00C_158	F00C_159	F00C_160	F00C_161	F00C_162	F00C_163	F00C_164
Pos18	x18	F00C_154	F00C_155	F00C_156	F00C_157	F00C_158	F00C_159	F00C_160	F00C_161	F00C_162	F00C_163	F00C_164	F00C_165
Pos19	x19	F00C_155	F00C_156	F00C_157	F00C_158	F00C_159	F00C_160	F00C_161	F00C_162	F00C_163	F00C_164	F00C_165	F00C_166
Pos20	x20	F00C_156	F00C_157	F00C_158	F00C_159	F00C_160	F00C_161	F00C_162	F00C_163	F00C_164	F00C_165	F00C_166	F00C_167
Pos21	x21	F00C_157	F00C_158	F00C_159	F00C_160	F00C_161	F00C_162	F00C_163	F00C_164	F00C_165	F00C_166	F00C_167	F00C_168
Pos22	x22	F00C_158	F00C_159	F00C_160	F00C_161	F00C_162	F00C_163	F00C_164	F00C_165	F00C_166	F00C_167	F00C_168	F00C_169
Pos23	x23	F00C_159	F00C_160	F00C_161	F00C_162	F00C_163	F00C_164	F00C_165	F00C_166	F00C_167	F00C_168	F00C_169	F00C_170
Pos24	x24	F00C_160	F00C_161	F00C_162	F00C_163	F00C_164	F00C_165	F00C_166	F00C_167	F00C_168	F00C_169	F00C_170	F00C_171
Pos25	x25	F00C_161	F00C_162	F00C_163	F00C_164	F00C_165	F00C_166	F00C_167	F00C_168	F00C_169	F00C_170	F00C_171	F00C_172

Figure 1: Sample Input

### Test Case 1:

Input: InputFile2.csv

Output: The program outputs a set of the top most optimal assignments based on least total penalty

Explanation: Input met all the constraints and the program prints several bipartite perfect matches allocating professors to courses

```

PS C:\Users\The Fiery dragon\OneDrive\Documents\Sid\BITS\Year 2\Disco Project\Disco-Project> & "C:\Users\The Fiery dragon\AppData\Local\Programs\Python\Python39\python.exe" "c:/Users/The Fiery dragon/OneDrive/Documents/Sid/BITS/Year 2/Disco Project/Disco-Project/Find_Assignment.py"

(Prof1 -> FDCDC_F17) (Prof1 -> FDCDC_F17)
(Prof10 -> FDCDC_F18)
(Prof11 -> FDCDC_F110) (Prof11 -> FDCDC_F19) (Prof11 -> FDCDC_F19)
(Prof12 -> FDCDC_F14)
(Prof2 -> FDCDC_F12) (Prof2 -> FDCDC_F12)
(Prof3 -> FDCDC_F18)
(Prof4 -> FDCDC_F111) (Prof4 -> FDCDC_F16) (Prof4 -> FDCDC_F16)
(Prof5 -> FDCDC_F13) (Prof5 -> FDELEC_F11)
(Prof6 -> FDCDC_F11)
(Prof7 -> FDCDC_F13) (Prof7 -> FDCDC_F15) (Prof7 -> FDCDC_F15)
(Prof8 -> FDCDC_F11) (Prof8 -> FDCDC_F14) (Prof8 -> FDELEC_F11)
(Prof9 -> FDCDC_F110) (Prof9 -> FDCDC_F111)

(Prof1 -> FDCDC_F17) (Prof1 -> FDCDC_F17)
(Prof10 -> FDELEC_F12)
(Prof11 -> FDCDC_F110) (Prof11 -> FDCDC_F19) (Prof11 -> FDCDC_F19)
(Prof12 -> FDCDC_F110)
(Prof2 -> FDCDC_F12) (Prof2 -> FDCDC_F15)
(Prof3 -> FDCDC_F12)
(Prof4 -> FDCDC_F111) (Prof4 -> FDCDC_F16) (Prof4 -> FDCDC_F16)
(Prof5 -> FDCDC_F18) (Prof5 -> FDCDC_F18)
(Prof6 -> FDCDC_F11)
(Prof7 -> FDCDC_F13) (Prof7 -> FDCDC_F13) (Prof7 -> FDCDC_F15)
(Prof8 -> FDCDC_F11) (Prof8 -> FDCDC_F14) (Prof8 -> FDCDC_F14)
(Prof9 -> FDCDC_F111) (Prof9 -> FDELEC_F12)

(Prof1 -> FDCDC_F17) (Prof1 -> FDCDC_F17)
(Prof10 -> FDCDC_F18)
(Prof11 -> FDCDC_F110) (Prof11 -> FDCDC_F19) (Prof11 -> FDCDC_F19)
(Prof12 -> FDCDC_F110)
(Prof2 -> FDCDC_F12) (Prof2 -> FDCDC_F15)
(Prof3 -> FDCDC_F12)
(Prof4 -> FDCDC_F16) (Prof4 -> FDCDC_F16) (Prof4 -> FDELEC_F13)
(Prof5 -> FDCDC_F13) (Prof5 -> FDCDC_F18)
(Prof6 -> FDCDC_F11)
(Prof7 -> FDCDC_F13) (Prof7 -> FDCDC_F14) (Prof7 -> FDCDC_F15)
(Prof8 -> FDCDC_F11) (Prof8 -> FDCDC_F14) (Prof8 -> FDELEC_F13)
(Prof9 -> FDCDC_F111) (Prof9 -> FDCDC_F111)

```

Figure 2: Screenshot of the terminal when program is run with the given csv file as input

## Test Case 2:

Input: InputFile3.csv

Output:

```

PS C:\Users\The Fiery dragon\OneDrive\Documents\Sid\BITS\Year 2\Disco Project\Disco-Project> & "C:\Users\The Fiery dragon\AppData\Local\Programs\Python\Python39\python.exe" "c:/Users/The Fiery dragon/OneDrive/Documents/Sid/BITS/Year 2/Disco Project/Disco-Project/Find_Assignment.py"
debugpy\launcher -s 48411 -c "c:/Users/The Fiery dragon/OneDrive/Documents/Sid/BITS/Year 2/Disco Project/Disco-Project/Find_Assignment.py"
CRASH: INVALID ASSIGNMENT - Cannot assign CDCs to all professors since number of slots that professors can teach is less than what is needed
PS C:\Users\The Fiery dragon\OneDrive\Documents\Sid\BITS\Year 2\Disco Project\Disco-Project>

```

Figure 3: Test Case 2 Output

Explanation: Crash Test-Number of professors is not sufficient to assign someone to all CDC slots. As a result the above message is printed in output and the program crashes.

## Test Case 3:

Input:InputFile5.csv

Output:

Explanation: Crash Test-When there are more number of professors to be assigned than the total courses offered(CDCs+Electives) for a given semester.

```

PS C:\Users\The Fiery dragon\OneDrive\Documents\Sid\BITS\Year 2\Disco Project\Disco-Project> & "C:\Users\The Fiery dragon\AppData\Local\Programs\Python\Python39\python.exe" "c:\Users\The Fiery dragon\.vscode\extensions\ms-python.python-2023.20.0\pythonFiles\lib\python\debugpy\adapter\..\..\debugpy\launcher" "65822" "-." "c:\Users\The Fiery dragon\OneDrive\Documents\Sid\BITS\Year 2\Disco Project\Disco-Project\Find_Assignment.py"
CRASH: INVALID ASSIGNMENT - Not enough courses to fill all prof slots, some professors will not complete necessary number of courses depending on their category (X1,x2,x3)
PS C:\Users\The Fiery dragon\OneDrive\Documents\Sid\BITS\Year 2\Disco Project\Disco-Project>

```

Figure 4: Test Case 3 Output

## Test Case 4:

Input:InputFile4.csv

Output:

```

PS C:\Users\The Fiery dragon\OneDrive\Documents\Sid\BITS\Year 2\Disco Project\Disco-Project> & "C:/Users/The Fiery dragon/AppData/Local/Programs/Python/Python39/python.exe" "c:/Users/The Fiery dragon/OneDrive/Documents/Sid/BITS/Year 2/Disco Project/Disco-Project/Find_Assignment.py"
CRASH: INVALID ASSIGNMENT - Odd number of professor slots, Indicating that atleast 1 course will be half assigned
PS C:\Users\The Fiery dragon\OneDrive\Documents\Sid\BITS\Year 2\Disco Project\Disco-Project>

```

Figure 5: Test Case 4 Output

Explanation: Crash Test-After assigning the CDCs, the number of professor slots is odd, then a teacher is assigned half of an elective course which is not possible, as a result the above message is seen and program crashes.