

Unit 8 Assignment 1

Name: Spuritha Mudireddy

CSULB ID: 030743269

Rewrite the following code segment using a multiple-selection statement in the following languages:

```
if ((rate == 1) || (rate == 2)) factor = 2 * rate - 1
if ((rate == 3) || (rate == 5)) factor = 3 * rate + 1
if (rate == 4) factor = 4 * rate - 1
if ((rate == 6) || (rate == 7) || (rate == 8)) factor = rate - 2
else factor = rate
```

Pascal

```
program Pascal;
var
    rate: integer=5;
var
    factor:integer=1;

begin
    Case rate of
        1,2: factor := 2 * rate - 1;
        3,5: factor := 3 * rate + 1;
        4: factor := 4 * rate - 1;
        6,7,8: factor := rate-2;
        else
            factor:=rate;
    end;
    writeln(factor)

end.
```

The screenshot shows the Free Pascal IDE interface. The top window displays a Pascal program named 'Pascal.pas' with the following code:

```
program Pascal;
var
    rate: integer=5;
var
    factor: integer=1;
begin
    Case rate of
    1,2: factor := 2 * rate - 1;
    3,5: factor := 3 * rate + 1;
    4: factor := 4 * rate - 1;
*===== 1:1 =====
```

The bottom window, titled 'User screen', shows the execution output:

```
■ Free Pascal IDE Version 1.0.12 [2021/05/15]
■ Compiler Version 3.2.2
■ GDB Version GNU gdb (GDB) 7.2
■ Using configuration files from: C:\WINDOWS\system32\
Running "c:\users\mspur\onedrive\desktop\assignments\apl\unit 8\unit 8-1\pascal.exe "
16
```

b. C

```
#include <stdio.h>

int main() {
    int rate=5,factor=1;
    switch(rate)
    {
        case 1:
        case 2:
            factor = 2 * rate - 1;
            break;
        case 3:
        case 5:
            factor = 3 * rate + 1;
            break;
        case 4:
            factor = 4 * rate - 1;
            break;
        case 6:
        case 7:
        case 8:
            factor = rate-2;
            break;
        default:
            factor = rate;
            break;
    }
    printf("%d",factor);
    return 0;
}
```

Code::Blocks 20.03

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

<global> main() : int

Management Projects Files Workspace

Start here x Cif.c x

```
1 #include <stdio.h>
2
3
4 int main() {
5     int rate=5, factor=1;
6     switch(rate)
7     {
8         case 1:
9         case 2:
10            factor = 2 * rate - 1;
11            break;
12        case 3:
13        case 5:
14            factor = 3 * rate + 1;
15            break;
16        case 4:
17            factor = 4 * rate - 1;
18            break;
19        case 6:
20        case 7:
21        case 8:
22            factor = rate-2;
23            break;
24        default:
25            factor = 1;
26    }
27 }
```

"C:\Users\mspur\OneDrive\Desktop\Assignments\API\Unit 8\Unit 8-1\Cif.exe"

16 Process returned 0 (0x0) execution time : 0.073 s
Press any key to continue.

C:\Users\mspur\OneDrive\

FORTRAN 77 (not one minute later)

```
program Fortran
  integer rate,factor
  rate=5
  factor=1
  IF (rate .EQ. 1 .OR. rate .EQ. 2) THEN
    factor = 2 * rate - 1
  ELSE IF(rate .EQ. 3 .OR. rate .EQ. 5) THEN
    factor = 3 * rate + 1
  ELSE IF(rate .EQ. 4) THEN
    factor = 4 * rate - 1
  ELSE IF(rate .EQ. 6 .or. rate .EQ. 7 .or. rate .EQ. 8 ) THEN
    factor=rate-2
  ELSE
    factor=rate
  ENDIF
  WRITE(*,*) factor
end program Fortran
```

Fortran - Notepad

File Edit View

```
program Fortran
integer rate,factor
rate=5
factor=1
IF (rate .EQ. 1 .OR. rate .EQ. 2) THEN
factor = 2 * rate - 1
ELSE IF(rate .EQ. 3 .OR. rate .EQ. 5) THEN
factor = 3 * rate + 1
ELSE IF(rate .EQ. 4) THEN
factor = 4 * rate - 1
ELSE IF(rate .EQ. 6 .or. rate .EQ. 7 .or. rate .EQ. 8 ) THEN
factor=rate-2
ELSE
factor=rate
ENDIF
WRITE(*,*) factor
end program Fortran
```

Command Prompt

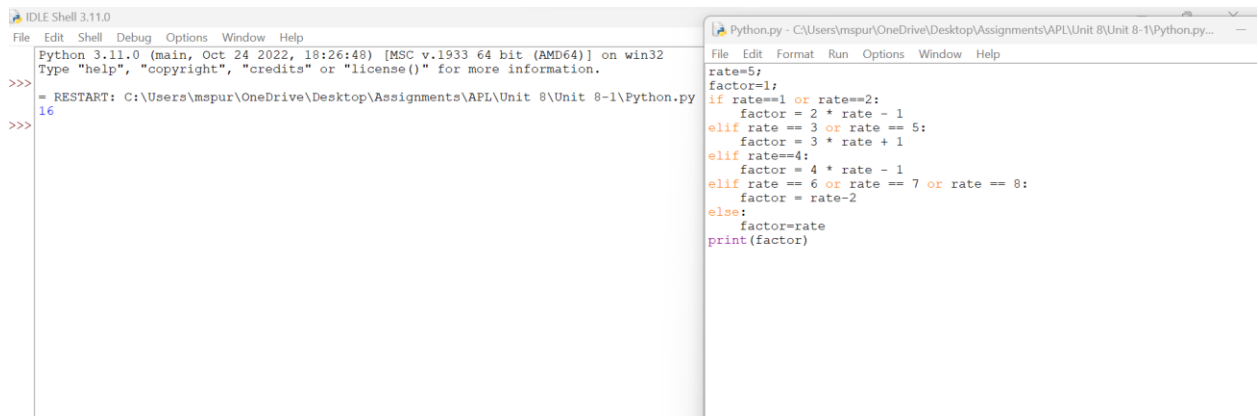
C:\Users\mspur\Documents>gfortran -o Fortran Fortran.f

C:\Users\mspur\Documents>Fortran
16

d. Python

```
rate=5;
factor=1;
if rate==1 or rate==2:
    factor = 2 * rate - 1
elif rate == 3 or rate == 5:
    factor = 3 * rate + 1
elif rate==4:
    factor = 4 * rate - 1
elif rate == 6 or rate == 7 or rate == 8:
    factor = rate-2
else:
    factor=rate
print(factor)
```

Output:



The screenshot shows two windows from the Python IDLE environment. The left window is the 'IDLE Shell 3.11.0' which displays the Python prompt and the execution of the code. The right window is the 'Python.py' editor showing the source code.

IDLE Shell 3.11.0

```
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> = RESTART: C:\Users\mspur\OneDrive\Desktop\Assignments\APL\Unit 8\Unit 8-1\Python.py
16
>>>
```

Python.py

```
rate=5;
factor=1;
if rate==1 or rate==2:
    factor = 2 * rate - 1
elif rate == 3 or rate == 5:
    factor = 3 * rate + 1
elif rate==4:
    factor = 4 * rate - 1
elif rate == 6 or rate == 7 or rate == 8:
    factor = rate-2
else:
    factor=rate
print(factor)
```

e. Ada

```
with Ada.Text_IO; use Ada.Text_IO;

procedure Hello is
begin
  declare
    rate : Integer := 5; factor : Integer := 1;
  begin
    case rate is
      when 1|2 =>
        factor := 2 * rate - 1;
      when 3|5 =>
        factor := 3 * rate + 1;
      when 4 =>
        factor := 4 * rate - 1;
      when 6|7|8 =>
        factor := rate - 2;
      when others =>
        factor := rate;

    end case;
    Ada.Text_IO.Put_Line (Integer'Image (factor));
  end;

end Hello;
```



```
gcc -c hello.adb
gnatbind -x hello.ali
gnatlink hello.ali -o hello
16
```