ICS 103 – Computer Programming in C

Summer Semester 2008 (073)

Lab # 4 (Selection)

Scope:

The student should practice the following topics:

1. The single-alternative ***if***.
2. The dual-alternative ***if***.
3. The multiple-alternative ***if-else***.
4. Nested ***if***.
5. The multiple-alternative ***switch*** statement.

Discussion:

The general syntax for the single-alternative ***if*** statement is:

```
if (condition)
    statement;
```

for a single executable statement, and

```
if (condition)
{
    Sequence of statements
}
```

for a sequence of executable statements.

The general syntax for the dual-alternative ***if*** statement is:

```
if (condition)
    statement1;
else
    statement2;
```

for a single executable statement in each clause, and

```
if (condition)
{
    Sequence #1 of statements
} else
{
    Sequence #2 of statements
}
```

for a sequence of executable statements in both clauses.

The general syntax for the multiple-alternative ***if-else*** statement is:

```
if (tested_condition1)
{
```

```
    Sequence #1 of statements
} else if (tested_condition2)
{
    Sequence #2 of statements
}
. . .
else if (tested_conditionN}
{
    Sequence #N of statements
}
```

The general syntax for the ***switch*** statement is:

```
switch (expression)
{
    case constant1_1:
        [ case constant1_2: ...]
        One_or_more_statements
        break;
    case constant2_1:
        [ case constant2_2: ...]
        One_or_more_statements
        break;
    ...
    case constantN_1:
        [ case constantN_2: …]
        One_or_more_statements
        break;
    default:
        One_or_more_statements
}
```

Example:

The following problem will be discussed in the class:

Write a program that prompts the user to enter a character and uses the multiple-alternative ***if-else*** statement to determine whether your input is one of the following:

a. An uppercase letter
b. A lowercase letter
c. A digit
d. A non-alphanumeric character.

Exercises:

1. Write a C program that reads an integer number, then it checks whether the number is divisible by 5 or not and prints a proper message.

Sample Output:

```
Enter an integer number > 43
43 is not divisible by 5
```

2. Write a C program that reads three integer numbers and prints them in increasing order.

Sample Output:

```
Enter three integers> 65 -9 3
-9  3   65
```

3. Write a C program that reads an integer number **n** where **1 ≤ n ≤ 10**, then it prints the number as ordinal number. If the number is outside the range, the program then prints `wrong input`. Use **switch** structure to make your decisions.

Sample Output:

```
Enter an integer number > 3
3rd
```

4. An electric power distribution company charges its domestic consumers as follows:

Consumption Units	**Rate of Charge**
0-200	SR. 0.50 per unit
201-400	SR. 1.00 per unit
401-600	SR. 2.30 per unit
601 and above	SR. 3.90 per unit

Write C Program to read the power consumed and prints the amount to be paid by the customer.