

KING SAUD UNIVERSITY
COLLEGE OF APPLIED STUDIES AND COMMUNITY SERVICE
CSC 1101 **Second Semester 1433-1434**

Tut # 10

Q1) Suppose that the input is 38 35 71 14 -1. What is the output of the following code? Assume all variables are properly declared.

```
cin >> num;
sum = num;
while (num != -1)
{
    cin >> num;
    sum = sum + num;
}
cout << "Sum = " << sum << endl;
```

Sum=157

sum	num
38	38
73	35
144	71
158	14
157	-1

Q2) Suppose that the input is 38 35 71 14 -1. What is the output of the following code? Assume all variables are properly declared.

```
sum = 0;
cin >> num;

while (num != -1)
{
    sum = sum + num;
    cin >> num;
}
cout << "Sum = " << sum << endl;
```

Sum=158

sum	num
0	38
38	35
73	71
144	14
158	-1

Q3) What is the output of the following C++ program segment? Assume all variables are properly declared.

```
for (j = 0; j < 8; j++)
{
    cout << j * 25 << " - ";
    if (j != 7)

        cout << (j + 1) * 25 - 1 << endl;
    else
        cout << (j + 1) * 25 << endl;
}
```

0-24
25-49
50-74
75-99
100-124
125-149
150-174
175-200

j
0
1
2
3
4
5
6
7
8

all variables

Q4) Rewrite the following as a for loop.

```
int i = 0, value = 0;
while (i <= 20)
{
    if (i % 2 == 0 && i <= 10)
        value = value + i * i;
    else if (i % 2 == 0 && i > 10)
        value = value + i;
    else
        value = value - i;
    i = i + 1;
}
cout << "value = " << value << endl;
```

int value=0;
for(int i=0; i<=20; i=i+1)
{

}
cout << "value = " << value <<

What is the output of this loop?

Q5) What is the output of the following code?

```
a) int i, j;
for (i = 1; i <= 5; i++)
{
for (j = 1; j <= 5; j++)
cout << setw(3) << i;
cout << endl;
}
```

```
1 1 1 1 1
2 2 2 2 2
3 3 3 3 3
4 4 4 4 4
5 5 5 5 5
```

```
b) int i, j;
for (i = 1; i <= 5; i++)
{
for (j = (i + 1); j <= 5; j++)
cout << setw(5) << j;
cout << endl;
}
```

```
2 3 4 5
3 4 5
4 5
5
```

```
c) int i, j;
for (i = 1; i <= 9; i++)
{
for (j = 1; j <= (9 - i); j++)
cout << " ";
for (j = 1; j <= i; j++)
cout << setw(1) << j;
for (j = (i - 1); j >= 1; j--)
cout << setw(1) << j;
cout << endl;
}
```

```
1
121
12321
1234321
123454321
12345654321
1234567654321
123456787654321
12345678987654321
```

```
d) int num = 12;
while (num >= 0)
{
if (num % 5 == 0)
break;
cout << num << " ";
num = num - 2;
}
cout << endl;
```

```
12
```

Q6) Write an application that asks a user to type A, B, C, or Q to quit. When the user types Q, the program ends. When the user types A, B, or C, the program displays the message “Good job!” and then asks for another input. When the user types anything else, issue an error message and then ask for another input. Save the file as ABCInput.cpp.

```
char letter;
cout<<"Please type letter A, B, C, or letter Q to quit:\n";
cin>>letter;

while(letter!='Q')
{
    if(letter=='A' || letter=='B' || letter=='C')
        cout<<"good job";
    else if (letter == 'Q') break;
    else cout<<"\nInvalid input \n";

    cout<<"\nPlease type letter A, B, C, or letter Q to quit:\n";
    cin>>letter;
}
```

```
Please type letter A, B, C, or letter Q to quit:
B
good job
Please type letter A, B, C, or letter Q to quit:
S
Invalid input
Please type letter A, B, C, or letter Q to quit:
Q
RUN FINISHED; exit value 0; real time: 7s; user: 0ms; system: 0ms
```

Q7) Write an application that calculates the amount of money earned on an investment, based on an 8 percent annual return. Prompt the user to enter an investment amount and the number of years for the investment. Do not allow the user to enter a number of years less than 1 or more than 30. Display the total amount (balance) for each year of the investment. Save the file as Investment.cpp.

```
float amount;
int years;
cout<<"Please, enter an investment amount:";
cin>>amount;
cout<<"Please enter the number of years for the investment(Between 1-30):";
cin>>years;

while(years<1 || years>30 )
{
    cout<<"***out of range***\n";
    cout<<"Please enter the number of years for the investment(Between 1-30):";
    cin>>years;
}

for(int i=1; i<=years; i++)
{
    int interest = (amount*0.08);
    amount = amount + interest;
    cout<<"The total amount(balance) for YEAR number [ "<i><<i<<" ]:"<<amount<<endl;
}
```

```
Please, enter an investment amount:1000
Please enter the number of years for the investment(Between 1-30):0
***out of range***
Please enter the number of years for the investment(Between 1-30):4
The total amount(balance) for YEAR number [ 1 ]:1080
The total amount(balance) for YEAR number [ 2 ]:1166
The total amount(balance) for YEAR number [ 3 ]:1259
The total amount(balance) for YEAR number [ 4 ]:1359
```