중앙대학교
CHUNG-ANG UNIVERSITY

Assignment 2
(Data types and Variables)

Chung-Ang University

Exercise 1

- **Write the following program code**

```
#include <stdio.h>

int main(void)
{
        int n1 = +2147483647; //Max value
        int n2 = -2147483648; //Min value
        printf("before overflow: %d\n", n1);
        n1 = n1 + 100; //overflow occurs
        printf("after overflow: %d\n", n1);

        printf("before underflow: %d\n", n2);
        n2 = n2 – 100; //underflow occurs
        printf("after underflow: %d\n", n2);
        return 0;
}
```

Exercise 2

- **Write the following program code**

```
#include <stdio.h>

int main(void)
{
        char code1 = 'B';
        char code2 = 66;
        char code3 = 'C';
        char code4 = 67;
        char code5 = 'D';
        char code6 = 68;
        printf("code1 = %c\n", code1);
        printf("code2 = %c\n", code2);
        printf("code3 = %c\n", code3);
        printf("code4 = %c\n", code4);
        printf("code5 = %c\n", code5);
        printf("code6 = %c\n", code6);
}
```

Exercise 3

- **Write the following program code**

```
#include <stdio.h>
int main()
{
        char code = ‘A’;
        printf(“%d %d %d \n”, code, code+1, code+2);
        printf(“%c %c %c \n”, code, code+1, code+2);
        return 0;
}
```

Exercise 4

- **Write the following program code**

```
#include <stdio.h>
int main()
{
        printf("char: %d %d\n", sizeof(char), sizeof(unsigned char);
        printf("short: %d %d\n", sizeof(short), sizeof(unsigned short);
        printf("int: %d %d\n", sizeof(int), sizeof(200));
        printf("long: %d %d\n", sizeof(long), sizeof(300L));
        printf("long long: %d %d\n", sizeof(long long), sizeof(900LL));
        printf("float: %d %d\n", sizeof(float), sizeof(3.14F));
        printf("double: %d %d\n", sizeof(float), sizeof(3.14));
        return 0;
}
```

Exercise 5

- **Write the following program code**

```
#include <stdio.h>
int global_variable = 55;
int main()
{
        int local_variable = 44;
        printf("global_variable is %d \n", global_variable);
        printf("local_variable is %d \n", local_variable);
        return 0;
}
```

Exercise 6

- **Write the following program code and fill in the blank to get same output**

```
#include <stdio.h>
int global_variable = 55;
int main()
{
        int local_variable = 44;
                                        blank

        printf("global_variable is %d\n", global_variable);
        printf("local_variable is %d\n", local_variable);
        return 0;
}
```

- **Output**

```
global_variable is 44
local_variable is 55
```

Exercise 7

- **Write the following program code and fill in the blank to get same output**

```
#include <stdio.h>
void test();
int m = 22, n = 44;
int main()
{
        blank
    printf("m=%d, n=%d\n", m, n);
    test();
}
void test()
{
        blank
    printf("m=%d, n=%d\n", m, n);
}
```

- **Output**

```
m=1, n=2
m=5, n=6
```

Exercise 8

- **Write the following program code**

```
#include <stdio.h>
#define N 30000
int main()
{
        double zero = 0;
        printf(“ 3000 / 0  = %lf\n”, N/zero);

        return 0;
}
```

Exercise 9

- **Write a program showing the following output**

```
“Hello”
‘Halo’
\\NICE\\
```

Exercise 10

- **Write the following program code**

```
#include <stdio.h>
int main()
{
        short a = 4;
        int b = 15;
        printf(“ a + b = %d, size is %d\n”, a+b , sizeof(a+b));
        return 0;
}
```