

Birla Institute of Technology & Science, Pilani, Hyderabad Campus
Second Semester 2020-2021

Computer Programming [CS F111] Lab 5

Q.1 Global Vs Local variables

a.

```
#include <stdio.h>
int main () {
    /* local variable declaration */
    int a, b;
    int c;
    /* actual initialization */
    a = 10;
    b = 20;
    c = a + b;
    printf ("value of a = %d, b = %d and c = %d\n", a, b, c);
    return 0;
}
```

Output: value of a = 10, b = 20 and c = 30

b.

```
#include <stdio.h>
/* global variable declaration */
int g;
int main () {
    /* local variable declaration */

    int a, b;
    /* actual initialization */
    a = 10;
    b = 20;
    g = a + b;
    printf ("value of a = %d, b = %d and g = %d\n", a, b, g);
    return 0;
}
```

Output: value of a = 10, b = 20 and g = 30

c.

```
#include <stdio.h>

/* global variable declaration */
int g = 20;

int main () {
    /* local variable declaration */
    int g = 10;
    printf ("value of g = %d\n", g);
    return 0;
}
```

Output: value of g = 10

Q.2 Enumerated Types (enum)

```
#include<stdio.h>

enum week{Mon=10, Tue, Wed, Thur, Fri=10, Sat=16, Sun};

enum day{Mond, Tues, Wedn, Thurs, Frid=18, Satu=11, Sund};

int main() {

    printf("The value of enum week: %d\t%d\t%d\t%d\t%d\t%d\t%d\n\n",Mon , Tue, Wed, Thur,
    Fri, Sat, Sun);

    printf("The default value of enum day: %d\t%d\t%d\t%d\t%d\t%d\t%d",Mond , Tues, Wedn,
    Thurs, Frid, Satu, Sund);

    return 0;
}
```

Output: The value of enum week: 10 11 12 13 10 16 17
The default value of enum day: 0 1 2 3 18 11 12

Q.3 Print the Integer max and min of your machine. Print their products with and without typecasting the variables into long int. Note you will have to change the format specifier of the print statement to "%li" see the difference.

Solution:

```
#include <stdio.h>
#include <limits.h>
int main()
```

```

{
    printf("%d ",INT_MIN);
    printf("%d ",INT_MAX);
    printf("%d ",INT_MIN*INT_MAX);
    printf("%li ",(long)INT_MIN*(long)INT_MAX);

    return 0;
}

```

Q.4 You need to make a program that increments the input if “Odd” and decrements if “Even”. However, you are not allowed to use if-else or switch.

Solution:

```

#include <stdio.h>
int main()
{
    int n;
    scanf("%d",&n);
    (n%2==0) ? printf("%d",--n):printf("%d",++n);
    return 0;
}

```

Q.5 Take 2 integer inputs, divide them and print the result in decimals. Eg. 5/4=1.25

Solution:

```

#include <stdio.h>
int main()
{
    int n,m;
    scanf("%d %d",&n,&m);
    printf("%f",(float)n/(float)m);
    return 0;
}

```

Answer any one of the following tasks:

(1) In the similar lines to practice problem 4, the following statement

$(a > b) ? \text{printf}(\text{"\%d"}, a) : \text{printf}(\text{"\%d"}, b);$

prints the maximum number among two integers a and b .

Now extend the above statement to print the maximum among three integers a , b , and c .

(2) What is the output of the following program:

```
#include<stdio.h>
int main() {
    int i=100;
    for(int i=0; i<=10; i++)
    { i++;
      printf("\%d ", i);
    }
    printf("\%d", i);
}
```

Guess the correct output without executing the program. Then compile the program and verify your answer. Write the justification for the program's output as a comment inside the program and submit the program's screenshot and output.

(3) Consider `enum week={Sun, Mon, Tue, Wed, Thur, Fri, Sat}` and create an instance `enum week day`. Then set `day` to any of the values in `week` (i.e., `day = Mon` or `day= Tue`, etc.); Read a number of days, n , from the user and print the day of the week after n days from today i.e., if `day=wed`, then 11 days from wed is 0 day of the week and 100 day from wed is 5 day of the week.