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COURSE – BCA

SESSION – 2022 – 25

ASSIGNMENT – Practical Assignment on

18 NOV 2022 (conditional statements)

DATE OF ASSIGNMENT – 10 NOV 2022

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```c
/* 1. Write a C program to check whether a number is
negative, positive or zero.*/

#include <stdio.h>

int main(void)
{
    float n;
    printf("enter number \n");
    scanf("%f",&n);

    if(n>0)
        printf("input is positive \n");
    else if(n<0)
        printf("input is negative \n");
    else
        printf("input is zero \n");

return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make numtype
cc     numtype.c   -o numtype
~/Desktop/codes/18novassign $ ./numtype.exe
enter number
-12
input is negative
~/Desktop/codes/18novassign $ ./numtype.exe
enter number
0
input is zero
```

```c
/* 2. Write a C program to check whether a number is
divisible by 5 and 11 or not.*/

#include <stdio.h>

int main(void)
{
```

```c
    int n;
    printf("enter number \n");
    scanf("%d",&n);

    if((n%5==0)&&(n%11==0))   //% operator can take only
integer operand
        printf("%d is divisible by 5 and 11 both \n",n);
    else
        printf("%d is not divisible by both 5 and 11 \n",n);

    return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make divtest
cc     divtest.c   -o divtest
~/Desktop/codes/18novassign $ ./divtest
enter number
55
55 is divisible by 5 and 11 both
~/Desktop/codes/18novassign $ ./divtest
enter number
43
43 is not divisible by both 5 and 11
```

```c
/* 3. Write a C program to check whether a year is leap year
or not.*/
#include <stdio.h>

int main(void)
{
    int n;
    printf("enter year \n");
    scanf("%d",&n);

    if(((n%4==0)&&(n%100 != 0)) || (n%400 ==0))
        printf("%d is leap year \n",n);
    else
        printf("%d is not leap \n",n);
```

```
    return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make leap
cc     leap.c   -o leap
~/Desktop/codes/18novassign $ ./leap
enter year
2500
2500 is not leap
~/Desktop/codes/18novassign $ ./leap
enter year
2013
2013 is not leap
```

```
/* 4. Write a C program to check whether a character is
alphabet or not.*/

#include <stdio.h>

int main(void)
{
    char c;
    printf("enter character \n");
    scanf("%c",&c);

    if(((c>='a')&&(c<='z')) || ((c>='A')&&(c<='Z')))
        printf("character entered is alphabetical \n");
    else
        printf("character is not alphabetical \n");
return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make character
cc     character.c   -o character
~/Desktop/codes/18novassign $ ./character.exe
enter character
a
character entered is alphabetical
~/Desktop/codes/18novassign $ ./character.exe
enter character
8
character is not alphabetical
```

```c
/* 5. Write a C program to input any alphabet and check
whether it is vowel or consonant. */
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>   //for using toupper() function

int main(void){
    char a;

    //ensuring only alphabetical character is entered
    do
    {
        printf("enter alphabetical character \n");
        scanf("%c",&a);
        a = toupper(a);
    }
    while((a<'A'|| a>'Z'));
    /*toupper() function return uppercase if char is
lowercase
    uppercase characters remain unchanged */
    a = toupper(a);
    if(a =='A' || a=='E' || a=='I' || a=='O' || a=='U')
        printf("entered character is a vowel \n");
    else
        printf("entered character is consonant \n");

    return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make vowel
cc     vowel.c   -o vowel
~/Desktop/codes/18novassign $ ./vowel
enter alphabetical character
A
entered character is a vowel
~/Desktop/codes/18novassign $ ./vowel
enter alphabetical character
y
entered character is consonant
```

```c
/* 6. Write a C program to input any character and check
whether it is alphabet, digit
        or special character. */

#include <stdio.h>

int main(void)
{
    char c;
    printf("enter character \n");
    scanf("%c",&c);

    if(((c>='a')&&(c<='z')) || ((c>='A')&&(c<='Z')))
        printf("character entered is alphabetical \n");
    else if((c>='0')&&(c<='9'))
        printf("character entered is digit \n");
    else
        printf("character is special character \n");

    return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make chardetermine
cc     chardetermine.c   -o chardetermine
~/Desktop/codes/18novassign $ ./chardetermine.exe
enter character
A
character entered is alphabetical
~/Desktop/codes/18novassign $ ./chardetermine.exe
enter character
1
character entered is digit
~/Desktop/codes/18novassign $ ./chardetermine.exe
enter character
}
character is special character
```

```c
/* 7. Write a C program to check whether a character is
uppercase or lowercase alphabet. */

#include <stdio.h>
```

```c
int main(void)
{
    char c;
    printf("enter character \n");
    scanf("%c",&c);

    if(c>='a' && c<='z')
        printf("character is lowercase alphabet \n");
    else if(c>='A' && c<='Z')
        printf("character is uppercase alphabet \n");
    else
        printf("character is not alphabetical \n");

    return 0;

}
```

Output –

```
~/Desktop/codes/18novassign $ make upperlower
cc     upperlower.c   -o upperlower
~/Desktop/codes/18novassign $ ./upperlower.exe
enter character
A
character is uppercase alphabet
~/Desktop/codes/18novassign $ ./upperlower.exe
enter character
o
character is lowercase alphabet
```

```c
/* 8. Write a C program to input week number and print week day.*/

#include <stdio.h>

int main(void)
{
    int a;
    printf("enter week number(1 to 7) \n");
    scanf("%d",&a);
```

```c
    if(a == 1)
        printf("sunday \n");
    else if(a == 2)
        printf("monday \n");
    else if(a == 3)
        printf("tuesday \n");
    else if(a == 4)
        printf("wednesday \n");
    else if(a == 5)
        printf("thursday \n");
    else if(a == 6)
        printf("friday \n");
    else if(a == 7)
        printf("saturday \n");
    else
        printf("invalid week number \n");

return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make weeknum
cc     weeknum.c   -o weeknum
~/Desktop/codes/18novassign $ ./weeknum
enter week number(1 to 7)
5
thursday
~/Desktop/codes/18novassign $ ./weeknum
enter week number(1 to 7)
2
monday
```

```c
/* 9. Write a C program to input month number and print
number of days in that month.*/

#include <stdio.h>

int main(void)
{
```

```c
    int i;
    printf("enter month - number \n");
    scanf("%d",&i);

    if(i==1||i==3||i==7||i==8||i==10||i==12)
        printf("31 days \n");
    else if(i==2)
        printf("27 or 28 days(for leap year) \n");
    else if(i==4||i==6||i==9||i==11)
        printf("30 days \n");
    else
        printf("invalid month number \n");

    return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make month
cc     month.c   -o month
~/Desktop/codes/18novassign $ ./month
enter month - number
31
invalid month number
~/Desktop/codes/18novassign $ ./month
enter month - number
12
31 days
~/Desktop/codes/18novassign $ ./month
enter month - number
2
27 or 28 days(for leap year)
```

```c
/* 10. Write a C program to input angles of a triangle and
 check whether triangle is valid or not.*/

#include <stdio.h>

int main(void)
{
    float a1,a2,a3;
```

```
    printf("enter angles of triangle \n");
    scanf("%f %f %f",&a1,&a2,&a3);

    if((a1>0 && a2>0 && a3>0) && (a1+a2+a3 == 180))
    {
        printf("angles entered corresponds to a valid
triangle \n");
    }
    else
        printf("angles entered is not valid for existance of
triangle \n");

    return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make validangletri
cc     validangletri.c   -o validangletri
~/Desktop/codes/18novassign $ ./validangletri.exe
enter angles of triangle
0 90 90
angles entered is not valid for existance of triangle
~/Desktop/codes/18novassign $ ./validangletri.exe
enter angles of triangle
45 45 90
angles entered corresponds to a valid triangle
```

```
/* 11. Write a C program to input all sides of a triangle
and check whether
 triangle is valid or not.*/

#include <stdio.h>

int main(void)
{
```

```
    float a,b,c;
    printf("enter sides of the triangle \n");
    scanf("%f %f %f",&a,&b,&c);

    if(a+b>c && b+c>a && c+a>b)
        printf("sides are valid and corresponds to triangle
\n");
    else
        printf("entered sides doesn't corresponds to
triangle \n");
    return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make validsidetri
cc     validsidetri.c   -o validsidetri
~/Desktop/codes/18novassign $ ./validsidetri.exe
enter sides of the triangle
3 4 5
sides are valid and corresponds to triangle
~/Desktop/codes/18novassign $ ./validsidetri.exe
enter sides of the triangle
1 2 4
entered sides doesn't corresponds to triangle
```

```
/* 12. Write a C program to check whether the triangle is
equilateral, isosceles
    or scalene triangle.*/

#include <stdio.h>

int main(void)
{
    float a,b,c;
    printf("enter the sides of the triangle \n");
    scanf("%f %f %f",&a,&b,&c);

    //check if sides are valid for a triangle - sum of any
two must be greater then third
```

```
    if((a+b>c) && (b+c>a) && (c+a>b))
    {
        if((a==b) && (b==c))
            printf("triangle is equilateral \n");
        else if((a==b) || (b==c) || (c==a))
            printf("triangle is isosceles \n");
        else
            printf("triangle is scelene \n");
    }
    else
        printf("wrong input for sides of triangle\n");

    return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make triangletype
cc     triangletype.c   -o triangletype
~/Desktop/codes/18novassign $ ./triangletype.exe
enter the sides of the triangle
2 3 5
wrong input for sides of triangle
~/Desktop/codes/18novassign $ ./triangletype.exe
enter the sides of the triangle
2 2 2
triangle is equilateral
```

```
/* 13. Write a C program to input marks of five subjects
Physics,
 Chemistry, Biology, Mathematics and
Computer.
Calculate percentage and grade according to following:
Percentage >= 90% : Grade A
Percentage >= 80% : Grade B
Percentage >= 70% : Grade C
Percentage >= 60% : Grade D
Percentage >= 40% : Grade E
Percentage < 40% : Grade F */

#include <stdio.h>
```

```c
int main(void)
{
    float a,b,c,d,e,percent;
    percent =0;
    printf("input marks for sunbjects \n");
    printf("Physics :");
    scanf("%f",&a);
    printf("chemistry :");
    scanf("%f",&b);
    printf("biology :");
    scanf("%f",&c);
    printf("mathematics :");
    scanf("%f",&d);
    printf("computer :");
    scanf("%f",&e);

    percent = ((a+b+c+d+e)/500)*100;

    if(percent >= 90)
        printf("percentage = %.3f ->> Grade A \n",percent);
    else if(percent >= 80)
        printf("percentage = %.3f ->> Grade B \n",percent);
    else if(percent >= 70)
        printf("percentage = %.3f ->> Grade C \n",percent);
    else if(percent >= 60)
        printf("percentage = %.3f ->> Grade D \n",percent);
    else if(percent >= 40)
        printf("percentage = %.3f ->> Grade E \n",percent);
    else if(percent < 40)
        printf("percentage = %.3f ->> Grade F \n",percent);

    return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make marks
cc     marks.c   -o marks
~/Desktop/codes/18novassign $ ./marks
input marks for sunbjects
Physics :45
chemistry :67
biology :89
mathematics :33
computer :23
percentage = 51.400 ->> Grade E
```

```c
/* 14. Write a C program to input basic salary of an
employee and
calculate its Gross salary according to
following:
Basic Salary <= 10000 : HRA = 20%, DA = 80%
Basic Salary <= 20000 : HRA = 25%, DA = 90%
Basic Salary > 20000 : HRA = 30%, DA = 95% */

#include <stdio.h>

int main(void)
{
    float salary,hra,da;
    hra = 0;
    da = 0;
    printf("enter Basic salary \n");
    scanf("%f",&salary);

    if(salary<=10000)
    {
        hra = (salary*20)/100;
        da = (salary*80)/100;
    }
    else if(salary<=20000)
    {
        hra = (salary*25)/100;
        da = (salary*90)/100;
    }
    else if(salary>20000)
```

```
    {
        hra = (salary*30)/100;
        da = (salary*95)/100;
    }

    //net salary calculation
    salary = salary + hra + da;

    printf("gross salary(basic salary+da+hra) = %.3f
\n",salary);
    return 0;
}
```

Output –

```
~/Desktop/codes/18novassign $ make netsalary
cc     netsalary.c   -o netsalary
~/Desktop/codes/18novassign $ ./netsalary.exe
enter Basic salary
10000
gross salary(basic salary+da+hra) = 20000.000
~/Desktop/codes/18novassign $ ./netsalary.exe
enter Basic salary
160000
gross salary(basic salary+da+hra) = 360000.000
```
