C PROGRAMMING ASSIGNMENT: 11

DATE: 02.12.21

SUBMITTED BY: -

NAME: MUKTESH MISHRA

BRANCH: CSE

SECTION: B22

ROLL NO.: 21052258

Program1:

- WAP for a matchstick game being played between the computer and a user. Your program should ensure that the computer always wins. Rules for the game are as follows:
  - There are 21 matchsticks.
  - The computer asks the player to pick 1, 2, 3, or 4 matchsticks.
  - After the person picks, the computer does its picking.
  - Whoever is forced to pick up the last matchstick loses the game.

Code:

```c
#include<stdio.h>
//matchstick game
int main()
{
    int ms = 21, uc, cc;
    while(ms>=1)
    {
        printf("Total Match Sticks: %d\n", ms);
        printf("Pick up the no of match sticks between (1 to 4): ");
        scanf("%d", &uc);

        if(uc>4)
        {
            printf("Invalid Entry");
            break;
        }
        cc = 5 - uc;
        printf("Computer picks up the %d match sticks.\n", cc);
        ms = ms-uc-cc;
        if(ms==1)
        {
            printf("\nYou have been lost via computer.");
            break;
        }
    }
    return 0;
```

```
}
```

Output;

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! ht

PS C:\Users\HP\Desktop\c\lab> cd "c:\Users\HP\Desktop\c\lab\02dec21
Total Match Sticks: 21
Pick up the no of match sticks between (1 to 4): 4
Computer picks up the 1 match sticks.
Total Match Sticks: 16
Pick up the no of match sticks between (1 to 4): 2
Computer picks up the 3 match sticks.
Total Match Sticks: 11
Pick up the no of match sticks between (1 to 4): 1
Computer picks up the 4 match sticks.
Total Match Sticks: 6
Pick up the no of match sticks between (1 to 4): 3
Computer picks up the 2 match sticks.

You have been lost via computer.
PS C:\Users\HP\Desktop\c\lab\02dec21_lab>
```

Program 2:

- WAP to print all prime numbers from 1 to 300.

Code:

```c
#include <stdio.h>
//prime nos  from 1 to 300
void main()
{
    int i, num, count = 0;
    printf("The prime numbers in between the range 1
to 300:\n");
    for (num = 1; num <= 300; num++)
    {
        count = 0;
        for (i = 2; i <= num / 2; i++)
        {
            if (num % i == 0)
            {
                count++;
                break;
            }
        }
        if (count == 0 && num != 1)
            printf("%d\n", num);
    }
}
```

Output:

```
The prime numbers in between the range 1 to 300:
2
3
5
7
11
13
17
19
23
29
31
37
41
43
47
53
59
61
163
167
173
179
181
191
193
197
199
211
223
227
229
233
239
241
251
257
263
269
271
277
281
283
293
PS C:\Users\HP\Desktop\c\lab\02dec21_lab>
```

Program 3:

- Write a menu driven program which has following options:
  1. Factorial of a number.
  2. Prime or not
  3. Odd or even
  4. Exit

Code:

```
#include <stdio.h>
//menu driven
int main(int argc, char const *argv[])
{
    int c;
    int n, f = 1, count;
    printf("Enter 1 for performing factorial of a number\n");
    printf("Enter 2 for performing prime or not\n");
    printf("Enter 3 for performing Odd or even number\n");
    printf("Enter 4 for exiting the program\n");
    printf("Enter your choice\n");
    scanf("%d", &c);
    switch (c)
    {
    case 1:
        // factorial
        printf("Enter a number\n");
        scanf("%d", &n);
        for (int i = 1; i <= n; i++)
        {
            f = f * i;
        }
        printf("%d", f);
        break;
    case 2:
        // prime or not
```

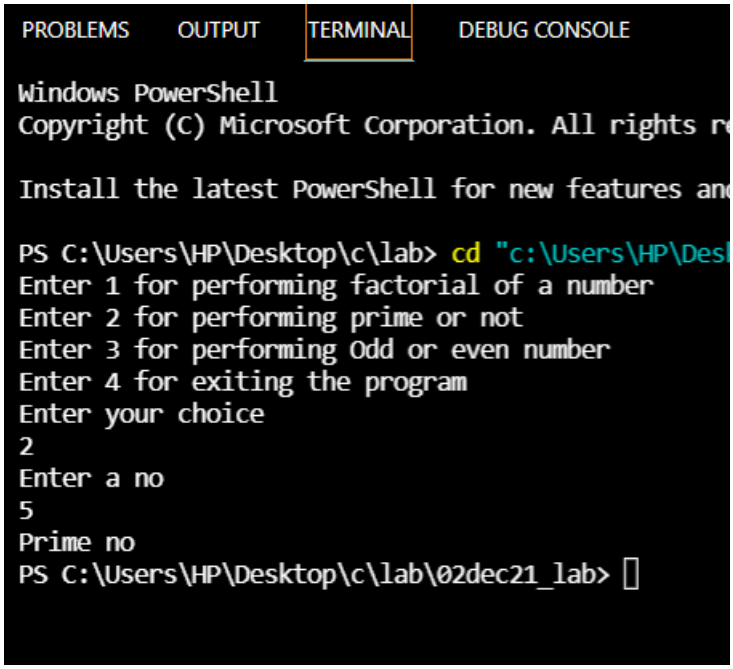
```
        printf("Enter a no \n");
        scanf("%d", &n);
        count = 0;
        for (int i = 2; i <= n/2 ; i++)
        {
            if (n % i == 0)
            {
                count++;
                break;
            }
        }
        if (count == 0 && n != 1)
            printf("Prime no\n");
        else
        {
            printf("Not a prime no\n");
        }
        break;
    case 3:
        // even or odd
        printf("Enter a no \n");
        scanf("%d", &n);
        if(n%2==0){
            printf("Even no");
        }
        else{
            printf("Odd no");
        }
        break;
    case 4:
        break;

    default:
        printf("Invalid");
```

```
        break;
    }


    return 0;
}
```

Output:



Program 4:

- WAP to calculate overtime pay of 10 employees. Overtime is paid at the rate of Rs. 12.00 per hour for every hour worked above 40 hours. Assume that employees do not work for fractional part of an hour.

Code:

```
#include <stdio.h>
// overtime pay
int main(int argc, char const *argv[])
{
    int n,a;
    for (int i = 1; i <= 10; i++)
    {
        printf("Enter the no of hours worked by
employee %d:\n", i);
        scanf("%d", &n);
        if (n > 40)
        {
            a = (n - 40) * 12;
            printf("The overtime amount to be payed to
employee %d is: Rs.%d\n",i,a);
        }
        else{
            printf("No overtime pay\n");
        }

    }

    return 0;
}
```

Output:

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! htt

PS C:\Users\HP\Desktop\c\lab> cd "c:\Users\HP\Desktop\c\lab\02dec21_
Enter the no of hours worked by employee 1:
50
The overtime amount to be payed to employee 1 is: Rs.120
Enter the no of hours worked by employee 2:
40
No overtime pay
Enter the no of hours worked by employee 3:
90
The overtime amount to be payed to employee 3 is: Rs.600
Enter the no of hours worked by employee 4:
60
The overtime amount to be payed to employee 4 is: Rs.240
Enter the no of hours worked by employee 5:
50
The overtime amount to be payed to employee 5 is: Rs.120
Enter the no of hours worked by employee 6:
80
The overtime amount to be payed to employee 6 is: Rs.480
Enter the no of hours worked by employee 7:
70
The overtime amount to be payed to employee 7 is: Rs.360
Enter the no of hours worked by employee 8:
50
The overtime amount to be payed to employee 8 is: Rs.120
Enter the no of hours worked by employee 9:
60
The overtime amount to be payed to employee 9 is: Rs.240
Enter the no of hours worked by employee 10:
250
The overtime amount to be payed to employee 10 is: Rs.2520
PS C:\Users\HP\Desktop\c\lab\02dec21_lab>
```

Program 5:

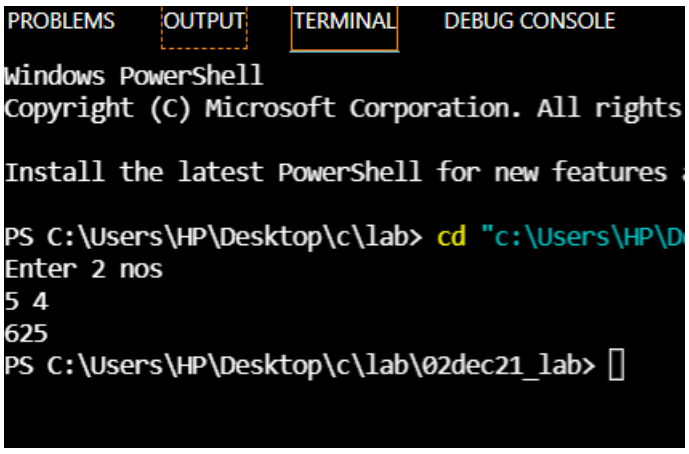
- Two numbers are entered through the keyboard. WAP to find the value of one number raised to the power of another.

Code:

```c
#include <stdio.h>
// One no raise to other
int main(int argc, char const *argv[])
{
    int n1,n2,r=1;
    printf("Enter 2 nos\n");
    scanf("%d %d", &n1, &n2);
    for (int i = 1; i <= n2; i++)
    {
        r=r*n1;
    }
    printf("%d\n", r);

    return 0;
}
```

Output:



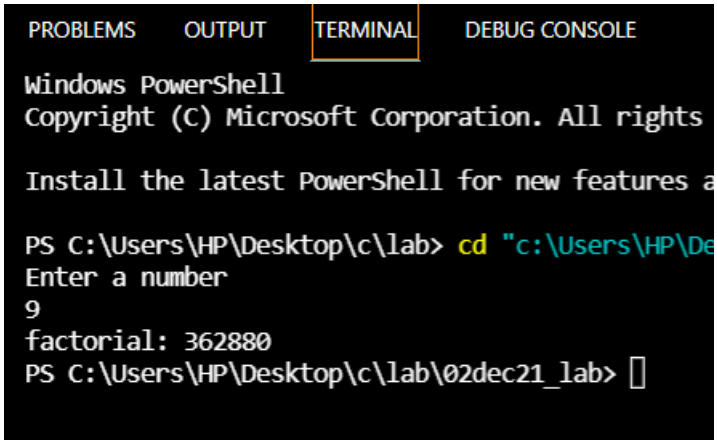
Program 6:

- WAP to find the factorial value of any number entered through the keyboard.

Code:

```c
#include <stdio.h>
// factorial
int main(int argc, char const *argv[])
{
    int n, f = 1;
    printf("Enter a number\n");
    scanf("%d", &n);
    for (int i = 1; i <= n; i++)
    {
        f = f * i;
    }
    printf("factorial: %d", f);
    return 0;
}
```

Output:



Program 7:

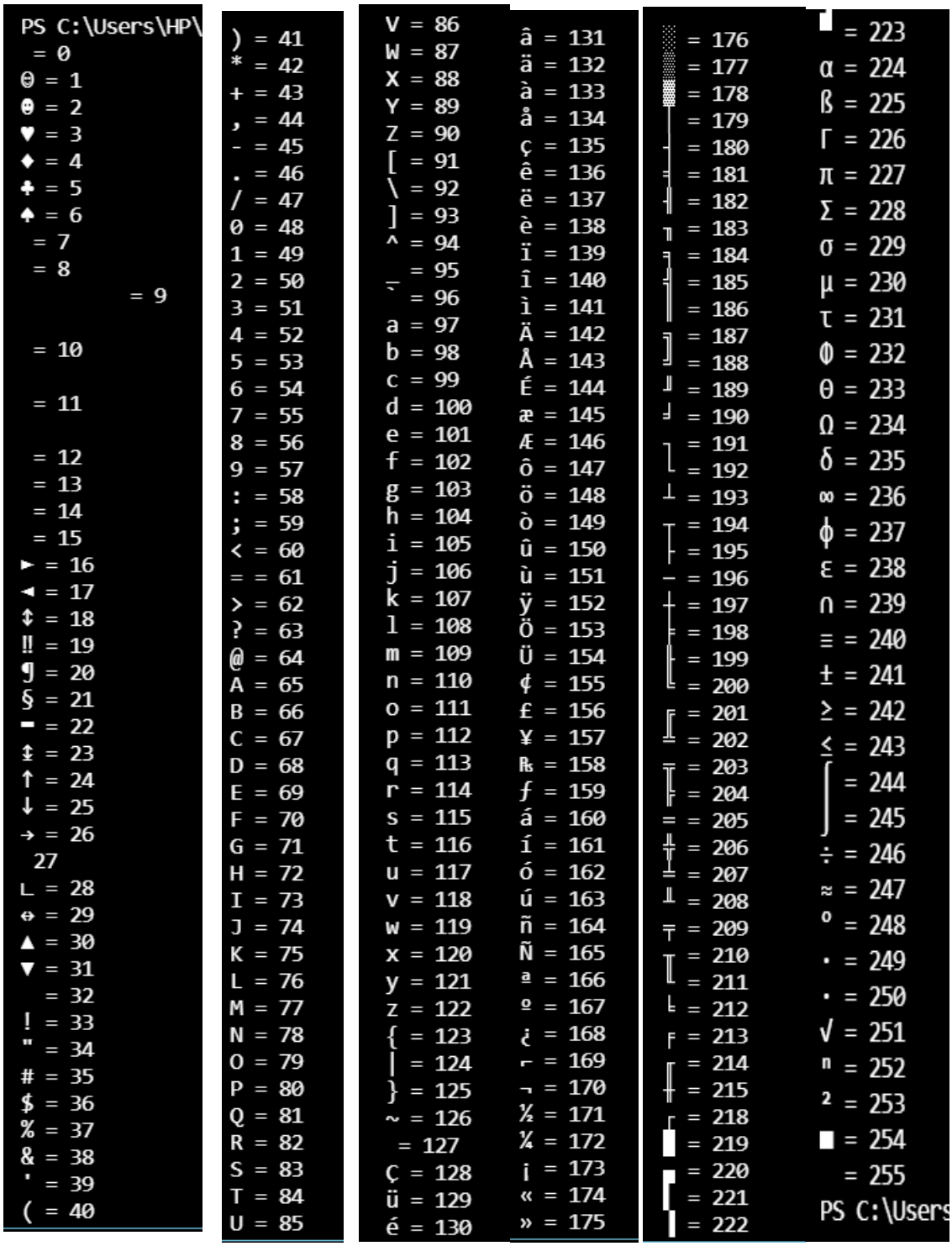
- WAP to print all the ASCII values and their equivalent characters using a while loop. The ASCII values vary from 0 to 255.

Code:

```c
#include <stdio.h>
// ascii
int main()
{
    char ascii;
    int i;

    for (i = 0; i <= 255; i++)
    {
        printf("%c = %d\n", i, i);
    }
}
```

Output:


PS C:\Users\HP\
= 0
☺ = 1
☻ = 2
♥ = 3
♦ = 4
♣ = 5
♠ = 6
= 7
= 8
= 9
= 10
= 11
= 12
= 13
= 14
= 15
► = 16
◄ = 17
↕ = 18
‼ = 19
¶ = 20
§ = 21
▬ = 22
↨ = 23
↑ = 24
↓ = 25
→ = 26
27
∟ = 28
↔ = 29
▲ = 30
▼ = 31
= 32
! = 33
" = 34
= 35
$ = 36
% = 37
& = 38
' = 39
(= 40
) = 41
* = 42
+ = 43
, = 44
- = 45
. = 46
/ = 47
0 = 48
1 = 49
2 = 50
3 = 51
4 = 52
5 = 53
6 = 54
7 = 55
8 = 56
9 = 57
: = 58
; = 59
< = 60
= = 61
> = 62
? = 63
@ = 64
A = 65
B = 66
C = 67
D = 68
E = 69
F = 70
G = 71
H = 72
I = 73
J = 74
K = 75
L = 76
M = 77
N = 78
O = 79
P = 80
Q = 81
R = 82
S = 83
T = 84
U = 85
V = 86
W = 87
X = 88
Y = 89
Z = 90
[= 91
\ = 92
] = 93
^ = 94
_ = 95
` = 96
a = 97
b = 98
c = 99
d = 100
e = 101
f = 102
g = 103
h = 104
i = 105
j = 106
k = 107
l = 108
m = 109
n = 110
o = 111
p = 112
q = 113
r = 114
s = 115
t = 116
u = 117
v = 118
w = 119
x = 120
y = 121
z = 122
{ = 123
| = 124
} = 125
~ = 126
= 127
Ç = 128
ü = 129
é = 130
â = 131
ä = 132
à = 133
å = 134
ç = 135
ê = 136
ë = 137
è = 138
ï = 139
î = 140
ì = 141
Ä = 142
Å = 143
É = 144
æ = 145
Æ = 146
ô = 147
ö = 148
ò = 149
û = 150
ù = 151
ÿ = 152
Ö = 153
Ü = 154
¢ = 155
£ = 156
¥ = 157
₧ = 158
ƒ = 159
á = 160
í = 161
ó = 162
ú = 163
ñ = 164
Ñ = 165
ª = 166
º = 167
¿ = 168
⌐ = 169
¬ = 170
½ = 171
¼ = 172
¡ = 173
« = 174
» = 175
= 176
= 177
= 178
= 179
= 180
= 181
= 182
= 183
= 184
= 185
= 186
= 187
= 188
= 189
= 190
= 191
= 192
= 193
= 194
= 195
= 196
= 197
= 198
= 199
= 200
= 201
= 202
= 203
= 204
= 205
= 206
= 207
= 208
= 209
= 210
= 211
= 212
= 213
= 214
= 215
= 218
= 219
= 220
= 221
= 222
= 223
α = 224
ß = 225
Γ = 226
π = 227
Σ = 228
σ = 229
µ = 230
τ = 231
Φ = 232
Θ = 233
Ω = 234
δ = 235
∞ = 236
φ = 237
ε = 238
∩ = 239
≡ = 240
± = 241
≥ = 242
≤ = 243
⌠ = 244
⌡ = 245
÷ = 246
≈ = 247
° = 248
∙ = 249
· = 250
√ = 251
ⁿ = 252
² = 253
■ = 254
= 255
PS C:\Users

Program 8:

- WAP to find the octal equivalent of the entered number.

Code:

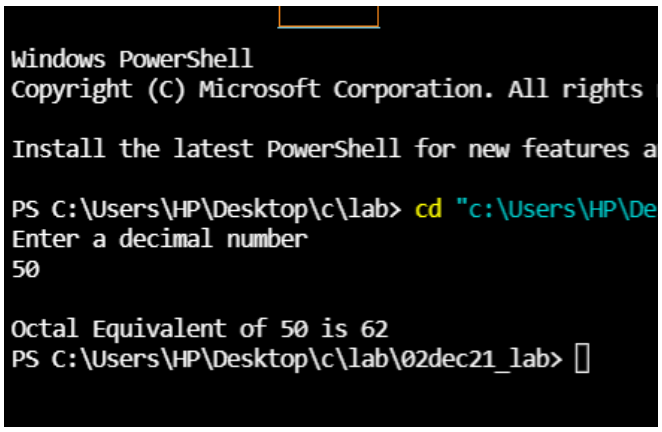
```c
#include <stdio.h>
//octal
int main()
{
    int num, oct = 0, rem = 0, place = 1;

    printf("Enter a decimal number\n");
    scanf("%d", &num);

    printf("\nOctal Equivalent of %d is ", num);
    while (num)
    {
        rem = num % 8;
        oct = oct + rem * place;
        num = num / 8;
        place = place * 10;
    }
    printf("%d\n", oct);

    return 0;
}
```

Output:


Windows PowerShell
Copyright (C) Microsoft Corporation. All rights
Install the latest PowerShell for new features a
PS C:\Users\HP\Desktop\c\lab> cd "c:\Users\HP\De
Enter a decimal number
50
Octal Equivalent of 50 is 62
PS C:\Users\HP\Desktop\c\lab\02dec21_lab>