GIC I2- 1B

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Assignment 06

Problem1: Write a program to display all even numbers in this range [2, 2000] using a for loop.

Example:

Output:

All even numbers between [2, 2000] are: 2 4 6 8 10 …… 2000

Code:

```c
#include <stdio.h>
int main(){
    int i ;
    printf("All even numbers between [2, 2000] are: ");
    for (i =2; i<=2000;i=i+2){
        printf("%d",i);


}}
```

Results:

```
All even numbers between [2, 2000] are: 2468101214161820222426283032343638404244464850525456586062646668707274767880828486889092949698100102104106108110112114116118120122124126128130132134136138140142144146148150152154156158160162164166168170172174176178180182184186188190192194196198200202204206208210212214216218220222224226228230232234236238240242244246248250252254256258260262264266268270272274276278280282284286288290292294296298300302304306308310312314316318320322324326328330332334336338340342344346348350352354356358360362364366368370372374376378380382384386388390392394396398400402404406408410412414416418420422424426428430432434436438440442444446448450452454456458460462464466468470472474476478480482484486488490492494496498500502504506508510512514516518520522524526528530532534536538540542544546548550552554556558560562564566568570572574576578580582584586588590592594596598600602604606608610612614616618620622624626628630632634636638640642644646648650652654656658660662664666668670672674676678680682684686688690692694696698700702704706708710712714716718720722724726728730732734736738740742744746748750752754756758760762764766768770772774776778780782784786788790792794796798800802804806808810812814816818820822824826828830832834836838840842844846848850852854856858860862864866868870872874876878880882884886888890892894896898900902904906908910912914916918920922924926928930932934936938940942944946948950952954956958960962964966968970972974976978980982984986988990992994996998100010021004100610081010101210141016101810201022102410261028103010321034103610381040104210441046104810501052105410561058106010621064106610681070107210741076107810801082108410861088109010921094109610981100110211041106110811101112111411161118112011221124112611281130113211341136113811401142114411461148115011521154115611581160116211641166116811701172117411761178118011821184118611881190119211941196119812001202120412061208121012121214121612181220122212241226122812301232123412361238124012421244124612481250125212541256125812601262126412661268127012721274127612781280128212841286128812901292129412961298130013021304130613081310131213141316131813201322132413261328133013321334133613381340134213441346134813501352135413561358136013621364136613681370137213741376137813801382138413861388139013921394139613981400140214041406140814101412141414161418142014221424142614281430143214341436143814401442144414461448145014521454145614581460146214641466146814701472147414761478148014821484148614881490149214941496149815001502150415061508151015121514151615181520152215241526152815301532153415361538154015421544154615481550155215541556155815601562156415661568157015721574157615781580158215841586158815901592159415961598160016021604160616081610161216141616161816201622162416261628163016321634163616381640164216441646164816501652165416561658166016621664166616681670167216741676167816801682168416861688169016921694169616981700170217041706170817101712171417161718172017221724172617281730173217341736173817401742174417461748175017521754175617581760176217641766176817701772177417761778178017821784178617881790179217941796179817901802180418061808181018121814181618181820182218241826182818301832183418361838184018421844184618481850185218541856185818601862186418661868187018721874187618781880188218841886188818901892189418961898190019021904190619081910191219141916191819201922192419261928193019321934193619381940194219441946194819501952195419561958196019621964196619681970197219741976197819801982198419861988199019921994199619982000
```

Problem2: Write a program to compute summation and subtraction of all numbers from 500 to 10. Display output on screen.

Examples:

Output:

The summation: 500 + 499 + 498 + … + 10 = **125205**

The subtraction: -500 - 499 - 498 - … - 10 = **-125205**

Code:

```c
#include <stdio.h>
int main (){
    int sum=0 , i,sub=501;
    printf("The summation:");
    for (int i = 500; i>=10; i = i-1){
        sum = sum+i;
        if (i==10){
        printf("%d=",i);
        }else {
        printf("%d+",i);
        }
    }
    printf("%d\n",sum);
    printf("The subtraction:");
    for (int i = 501; i>=10; i = i-1){
        sub = sub-i;
        if( i==10){
            printf("%d=",i);
        }else  {
            printf("%d-",i);
        }


}
        printf("%d",sub);
}
```

Results:

```
"D:\ITC I-2\TP GIC-1\TP-1\assi
The summation:500+499+498+497+496+495+494+493+492+491+490+489+488+487+486+485+484+483+482+481+480+479+478+477+476+475+474+473+472+471+47
0+469+468+467+466+465+464+463+462+461+460+459+458+457+456+455+454+453+452+451+450+449+448+447+446+445+444+443+442+441+440+439+438+437+43
6+435+434+433+432+431+430+429+428+427+426+425+424+423+422+421+420+419+418+417+416+415+414+413+412+411+410+409+408+407+406+405+404+403+40
2+401+400+399+398+397+396+395+394+393+392+391+390+389+388+387+386+385+384+383+382+381+380+379+378+377+376+375+374+373+372+371+370+369+36
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6+265+264+263+262+261+260+259+258+257+256+255+254+253+252+251+250+249+248+247+246+245+244+243+242+241+240+239+238+237+236+235+234+233+23
2+231+230+229+228+227+226+225+224+223+222+221+220+219+218+217+216+215+214+213+212+211+210+209+208+207+206+205+204+203+202+201+200+199+19
8+197+196+195+194+193+192+191+190+189+188+187+186+185+184+183+182+181+180+179+178+177+176+175+174+173+172+171+170+169+168+167+166+165+16
4+163+162+161+160+159+158+157+156+155+154+153+152+151+150+149+148+147+146+145+144+143+142+141+140+139+138+137+136+135+134+133+132+131+13
0+129+128+127+126+125+124+123+122+121+120+119+118+117+116+115+114+113+112+111+110+109+108+107+106+105+104+103+102+101+100+99+98+97+96+95
+94+93+92+91+90+89+88+87+86+85+84+83+82+81+80+79+78+77+76+75+74+73+72+71+70+69+68+67+66+65+64+63+62+61+60+59+58+57+56+55+54+53+52+51+50+
49+48+47+46+45+44+43+42+41+40+39+38+37+36+35+34+33+32+31+30+29+28+27+26+25+24+23+22+21+20+19+18+17+16+15+14+13+12+11+10=125205
The subtraction:501-500-499-498-497-496-495-494-493-492-491-490-489-488-487-486-485-484-483-482-481-480-479-478-477-476-475-474-473-472-
471-470-469-468-467-466-465-464-463-462-461-460-459-458-457-456-455-454-453-452-451-450-449-448-447-446-445-444-443-442-441-440-439-438-
437-436-435-434-433-432-431-430-429-428-427-426-425-424-423-422-421-420-419-418-417-416-415-414-413-412-411-410-409-408-407-406-405-404-
403-402-401-400-399-398-397-396-395-394-393-392-391-390-389-388-387-386-385-384-383-382-381-380-379-378-377-376-375-374-373-372-371-370-
369-368-367-366-365-364-363-362-361-360-359-358-357-356-355-354-353-352-351-350-349-348-347-346-345-344-343-342-341-340-339-338-337-336-
335-334-333-332-331-330-329-328-327-326-325-324-323-322-321-320-319-318-317-316-315-314-313-312-311-310-309-308-307-306-305-304-303-302-
301-300-299-298-297-296-295-294-293-292-291-290-289-288-287-286-285-284-283-282-281-280-279-278-277-276-275-274-273-272-271-270-269-268-
267-266-265-264-263-262-261-260-259-258-257-256-255-254-253-252-251-250-249-248-247-246-245-244-243-242-241-240-239-238-237-236-235-234-
233-232-231-230-229-228-227-226-225-224-223-222-221-220-219-218-217-216-215-214-213-212-211-210-209-208-207-206-205-204-203-202-201-200-
199-198-197-196-195-194-193-192-191-190-189-188-187-186-185-184-183-182-181-180-179-178-177-176-175-174-173-172-171-170-169-168-167-166-
165-164-163-162-161-160-159-158-157-156-155-154-153-152-151-150-149-148-147-146-145-144-143-142-141-140-139-138-137-136-135-134-133-132-
131-130-129-128-127-126-125-124-123-122-121-120-119-118-117-116-115-114-113-112-111-110-109-108-107-106-105-104-103-102-101-100-99-98-97
-96-95-94-93-92-91-90-89-88-87-86-85-84-83-82-81-80-79-78-77-76-75-74-73-72-71-70-69-68-67-66-65-64-63-62-61-60-59-58-57-56-55-54-53-52-
51-50-49-48-47-46-45-44-43-42-41-40-39-38-37-36-35-34-33-32-31-30-29-28-27-26-25-24-23-22-21-20-19-18-17-16-15-14-13-12-11-10=-125205
Process returned 0 (0x0)   execution time : 0.067 s
Press any key to continue.
```

Problem3: Write a program to sum all numbers from n to 1000 except the number 100, where n is an integer number input by the user.

Examples:

INPUT:
Enter a number: 5
Output:
The summation from 5 to 1000 except the number 100 is: **500390**

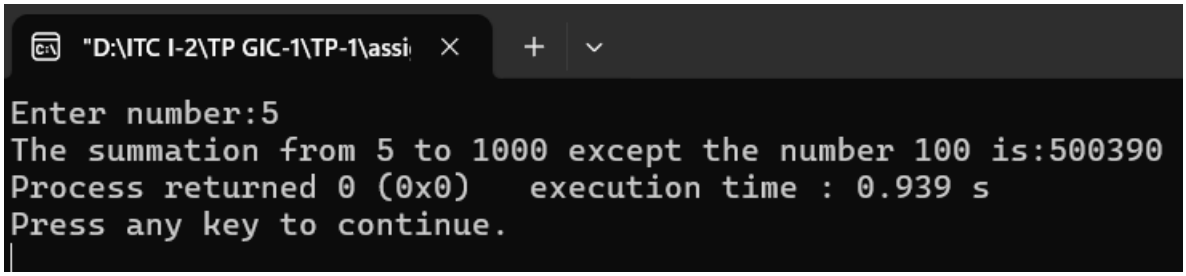
.....

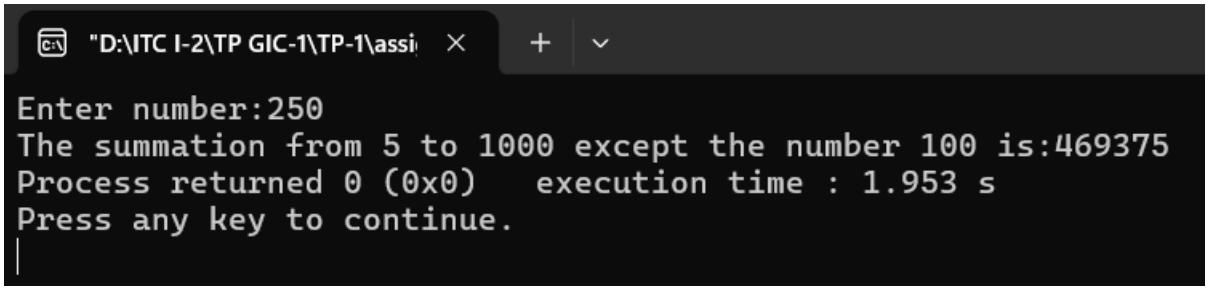
INPUT:
Enter a number: 250
Output:
The summation from 250 to 1000 except the number 100 is: **469375**

Code:

```c
#include <stdio.h>

int main (){
    int n,sum;
    printf("Enter number:");
    scanf("%d",&n);
    printf("The summation from 5 to 1000 except the number 100 is:");
    for (int i = n;i<=1000;i=i+1){
        if (i!=100){
            sum=sum+i;

        }
    }printf("%d",sum);

}
```

Results:





Problem4: Write a program to display all even numbers between 1 and 50 using a for loop.

Examples:

Output:

The summation of all even numbers between 1 and 50: 2 + 4 + 6 + … 50 = **650**

Code:

```c
#include <stdio.h>
int main (){
    int i, sum=0;
    printf("The summation of all even numbers between 1 and 50: 2 + 4 + 6 + … 50 = ");
    for (i=1; i<=50; i=i+1){
        if(i%2==0){
        sum = sum +i;

    }}
    printf("%d",sum);
}

```

Results:

```
"D:\ITC I-2\TP GIC-1\TP-1\assi
The summation of all even numbers between 1 and 50: 2 + 4 + 6 + … 50 = 650
Process returned 0 (0x0)   execution time : 0.028 s
Press any key to continue.
```

Problem5: Create a program that calculates and prints the power of 2 for the first 10 natural numbers using a for loop.

Examples:

Output:

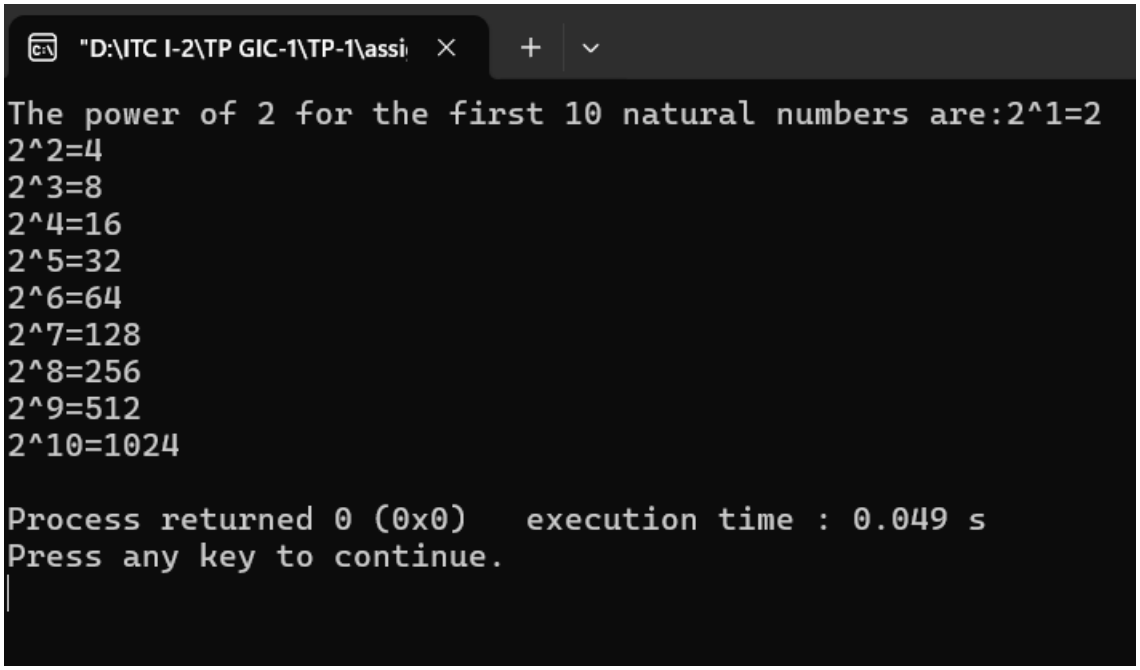
The power of 2 for the first 10 natural numbers are:

2^1 = 2
2^2 = 4
2^3 = 8
2^4 = 16
2^5 = 32
2^6 = 64
2^7 = 128
2^8 = 256
2^9 = 512
2^10 = 1024

Code:

```c
#include <stdio.h>
#include <math.h>
int main (){
    int r;
    printf("The power of 2 for the first 10 natural numbers are:");
    for (int i = 1;i<=10;i=i+1){
        r = pow(2,i);
        printf("2^%d=%d\n",i,r);
    }
}
```

Results:



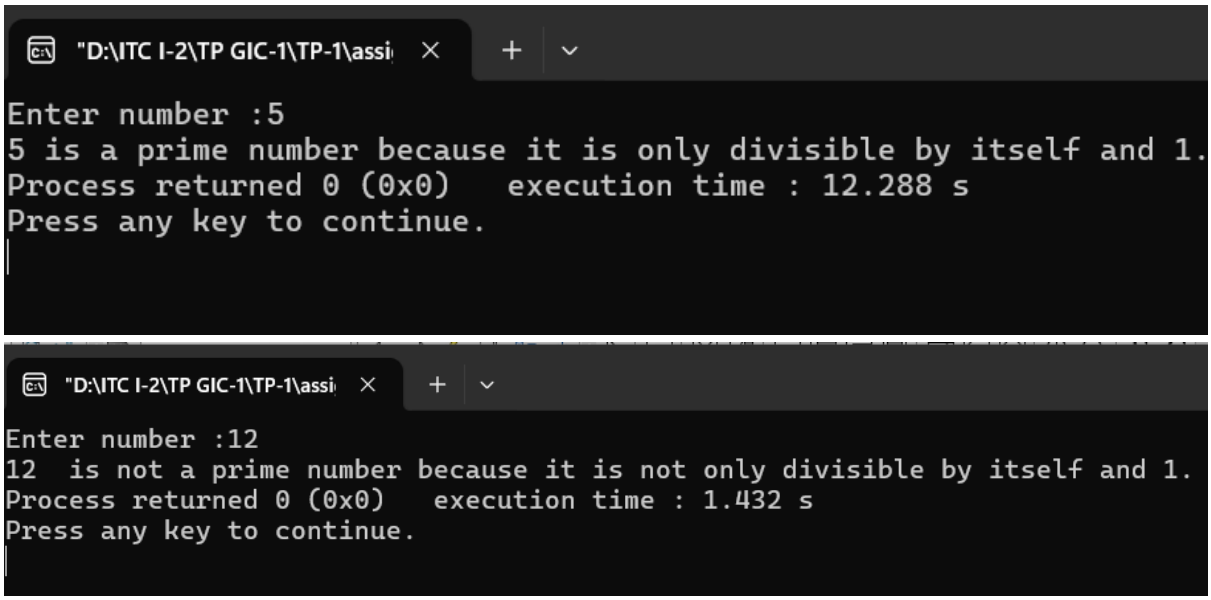
Problem6: Create a program to ask a user to input a number. The program will tell the user whether it is a prime number or not.

INPUT:
Enter a number: 5
Output:
5 is a prime number because it is only divisible by itself and 1.
……
INPUT:
Enter a number: 12
Output:
12 is not a prime number because it is not only divisible by itself and 1.

Code:

```c
#include <stdio.h>
#include <math.h>
int main (){
    int n,i,count=0;
    printf("Enter number :");
    scanf("%d",&n);

    for (i =1;i<=n;i=i+1){
        if (n%i==0){
            count = count +1;
        }
    }
    if(count==2){
        printf("%d is a prime number because it is only divisible by itself and 1.",n);
    }else {
        printf("%d  is not a prime number because it is not only divisible by itself and 1. ",n);
    }
}
```

Results:



Problem7: Create a program to identify and print all prime numbers between n and m using a for loop, where n and m are integer numbers input by the user.

INPUT:

Enter n: 20
Enter m: 50

Output:

All prime numbers between 20 and 50 are: **23,29,31,37,41,43** and **47.**

……

INPUT:

Enter n: 2
Enter m: 100

Output:

All prime numbers between 2 and 100 are: **2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89,** and **97.**

Code:

```c
#include <stdio.h>
int main() {
    int m, n;
    int first = 1;
    printf("Enter n: ");
    scanf("%d", &n);
    printf("Enter m: ");
    scanf("%d", &m);
    printf("Prime numbers between %d and %d: ", n, m);
    for (int i = n; i <= m; i++) {
        int count = 0;
        for (int j = 1; j <= i; j++) {
            if (i % j == 0) {
                count++;
            }}
        if (count == 2) {
            if (!first) {
                printf(", ");
            }
            printf("%d", i);
            first = 0;
        }}
    printf(".\n");

}
```

Results: