Assignment No. .

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Pull with Git?

Question No. 1

Write a function using reference variables as arguments to swap the values of a pair of integers.

Code

```cpp
//QUESTION Write a function using reference variables as arguments to swap the values of a pair of integers.

#include <iostream>

void swap(int &a, int &b)
{
    int temp = a;
    a = b;
    b = temp;
}

int main()
{
    std::cout << "Enter two Numbers: " << "
";
    int a, b;
    std::cin >> a >> b;
    std::cout << "Before Swapping: " << "
" << "a: " << a << "
" << "b: " << b << "
";
    swap(a , b);
    std::cout << "After Swapping: " << "
" << "a: " << a << "
" << "b: " << b << "
";
    return 0;
}
```

$ ./bin/1.o

Input
18 90

Output
Enter two Numbers:
Before Swapping:
a: 18
b: 90
After Swapping:
a: 90
b: 18

Question No. 2

Write a function that creates a vector of user given size M using new operator.

Code

```cpp
//QUESTION Write a function that creates a vector of user given size M using new operator.

#include <iostream>
#include <vector>

int main()
{
    int M;
    std::cout << "Enter the size of the vector you want to create: ";
    std::cin >> M;
    auto vec = new std::vector<int>(M , 0);
    std::cout << "The size of the vector is: " << vec->size() << '
';
    std::cout << "The Elements of the vector are: " << '
';
    for(auto it : *vec)
        std::cout << it << '
';
    return 0;
}
```

$ ./bin/2.o

Input
23

Output
Enter the size of the vector you want to create: The size of the vector is: 23
The Elements of the vector are:
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0

Question No. 3

Write a program to evaluate the following investment equation

Code

```cpp
//QUESTION Write a program to evaluate the following investment equation
//V = P(1+r)n
//and print the tables which would give the value of V for various
//of the following values of P, r and n:
//P: 1000, 2000, 3000,..............,10,000
//r: 0.10, 0.11, 0.12,.....................,0.20
//n: 1, 2, 3,........................................,10

#include <iostream>

int main()
{
    std::cout << "|P     |"
              << "|r    |"
              << "|n    |"
              << "|V" << std::endl;
    std::cout << "|---|---|---|---|" << std::endl;
    for (int n = 1; n <= 10; n++)
    {
        for (int r = 10; r <= 20; r++) // Don't work with doubles use ints and then divide by 10 later.
        {
            for (int P = 100; P <= 1000; P += 100)
            {
                long V = P * (10 + r) * n;
                std::cout << '|' << P << "     |" << r << "     |" << n << "     |" << V << '|' << "
";
            }
        }
    }
}
```

$ ./bin/3.o

Input

Output
```
|P ||r ||n ||V
|---|---|---|---|
|100 |10 |1 |2000|
|200 |10 |1 |4000|
|300 |10 |1 |6000|
|400 |10 |1 |8000|
|500 |10 |1 |10000|
|600 |10 |1 |12000|
|700 |10 |1 |14000|
|800 |10 |1 |16000|
|900 |10 |1 |18000|
|1000 |10 |1 |20000|
|100 |11 |1 |2100|
|200 |11 |1 |4200|
|300 |11 |1 |6300|
|400 |11 |1 |8400|
|500 |11 |1 |10500|
|600 |11 |1 |12600|
|700 |11 |1 |14700|
|800 |11 |1 |16800|
|900 |11 |1 |18900|
|1000 |11 |1 |21000|
```

100	12	1	2200
200	12	1	4400
300	12	1	6600
400	12	1	8800
500	12	1	11000
600	12	1	13200
700	12	1	15400
800	12	1	17600
900	12	1	19800
1000	12	1	22000
100	13	1	2300
200	13	1	4600
300	13	1	6900
400	13	1	9200
500	13	1	11500
600	13	1	13800
700	13	1	16100
800	13	1	18400
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300	14	1	7200
400	14	1	9600
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700	14	1	16800
800	14	1	19200
900	14	1	21600
1000	14	1	24000
100	15	1	2500
200	15	1	5000
300	15	1	7500
400	15	1	10000
500	15	1	12500
600	15	1	15000
700	15	1	17500
800	15	1	20000
900	15	1	22500
1000	15	1	25000
100	16	1	2600
200	16	1	5200
300	16	1	7800
400	16	1	10400
500	16	1	13000
600	16	1	15600
700	16	1	18200
800	16	1	20800
900	16	1	23400
1000	16	1	26000
100	17	1	2700
200	17	1	5400
300	17	1	8100
400	17	1	10800
500	17	1	13500
600	17	1	16200
700	17	1	18900
800	17	1	21600
900	17	1	24300
1000	17	1	27000
100	18	1	2800

200	18	1	5600
300	18	1	8400
400	18	1	11200
500	18	1	14000
600	18	1	16800
700	18	1	19600
800	18	1	22400
900	18	1	25200
1000	18	1	28000
100	19	1	2900
200	19	1	5800
300	19	1	8700
400	19	1	11600
500	19	1	14500
600	19	1	17400
700	19	1	20300
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700	20	1	21000
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300	10	2	12000
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500	10	2	20000
600	10	2	24000
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100	13	2	4600
200	13	2	9200

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500	14	2	24000
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700	14	2	33600
800	14	2	38400
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600	15	2	30000
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200	16	2	10400
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400	16	2	20800
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800	11	7	117600
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400	13	7	64400
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700	13	7	112700
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100	14	7	16800
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300	14	7	50400
400	14	7	67200
500	14	7	84000
600	14	7	100800
700	14	7	117600
800	14	7	134400
900	14	7	151200
1000	14	7	168000
100	15	7	17500
200	15	7	35000
300	15	7	52500
400	15	7	70000
500	15	7	87500
600	15	7	105000
700	15	7	122500
800	15	7	140000
900	15	7	157500
1000	15	7	175000
100	16	7	18200
200	16	7	36400
300	16	7	54600
400	16	7	72800
500	16	7	91000
600	16	7	109200
700	16	7	127400
800	16	7	145600
900	16	7	163800
1000	16	7	182000
100	17	7	18900
200	17	7	37800
300	17	7	56700
400	17	7	75600
500	17	7	94500
600	17	7	113400
700	17	7	132300
800	17	7	151200
900	17	7	170100
1000	17	7	189000
100	18	7	19600
200	18	7	39200
300	18	7	58800
400	18	7	78400
500	18	7	98000
600	18	7	117600
700	18	7	137200
800	18	7	156800
900	18	7	176400
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100	19	7	20300
200	19	7	40600

300	19	7	60900
400	19	7	81200
500	19	7	101500
600	19	7	121800
700	19	7	142100
800	19	7	162400
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400	20	7	84000
500	20	7	105000
600	20	7	126000
700	20	7	147000
800	20	7	168000
900	20	7	189000
1000	20	7	210000
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200	10	8	32000
300	10	8	48000
400	10	8	64000
500	10	8	80000
600	10	8	96000
700	10	8	112000
800	10	8	128000
900	10	8	144000
1000	10	8	160000
100	11	8	16800
200	11	8	33600
300	11	8	50400
400	11	8	67200
500	11	8	84000
600	11	8	100800
700	11	8	117600
800	11	8	134400
900	11	8	151200
1000	11	8	168000
100	12	8	17600
200	12	8	35200
300	12	8	52800
400	12	8	70400
500	12	8	88000
600	12	8	105600
700	12	8	123200
800	12	8	140800
900	12	8	158400
1000	12	8	176000
100	13	8	18400
200	13	8	36800
300	13	8	55200
400	13	8	73600
500	13	8	92000
600	13	8	110400
700	13	8	128800
800	13	8	147200
900	13	8	165600
1000	13	8	184000
100	14	8	19200
200	14	8	38400
300	14	8	57600

400	14	8	76800
500	14	8	96000
600	14	8	115200
700	14	8	134400
800	14	8	153600
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1000	14	8	192000
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200	15	8	40000
300	15	8	60000
400	15	8	80000
500	15	8	100000
600	15	8	120000
700	15	8	140000
800	15	8	160000
900	15	8	180000
1000	15	8	200000
100	16	8	20800
200	16	8	41600
300	16	8	62400
400	16	8	83200
500	16	8	104000
600	16	8	124800
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300	17	8	64800
400	17	8	86400
500	17	8	108000
600	17	8	129600
700	17	8	151200
800	17	8	172800
900	17	8	194400
1000	17	8	216000
100	18	8	22400
200	18	8	44800
300	18	8	67200
400	18	8	89600
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600	18	8	134400
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800	18	8	179200
900	18	8	201600
1000	18	8	224000
100	19	8	23200
200	19	8	46400
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400	19	8	92800
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800	19	8	185600
900	19	8	208800
1000	19	8	232000
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200	20	8	48000
300	20	8	72000
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500	20	8	120000
600	20	8	144000
700	20	8	168000
800	20	8	192000
900	20	8	216000
1000	20	8	240000
100	10	9	18000
200	10	9	36000
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400	10	9	72000
500	10	9	90000
600	10	9	108000
700	10	9	126000
800	10	9	144000
900	10	9	162000
1000	10	9	180000
100	11	9	18900
200	11	9	37800
300	11	9	56700
400	11	9	75600
500	11	9	94500
600	11	9	113400
700	11	9	132300
800	11	9	151200
900	11	9	170100
1000	11	9	189000
100	12	9	19800
200	12	9	39600
300	12	9	59400
400	12	9	79200
500	12	9	99000
600	12	9	118800
700	12	9	138600
800	12	9	158400
900	12	9	178200
1000	12	9	198000
100	13	9	20700
200	13	9	41400
300	13	9	62100
400	13	9	82800
500	13	9	103500
600	13	9	124200
700	13	9	144900
800	13	9	165600
900	13	9	186300
1000	13	9	207000
100	14	9	21600
200	14	9	43200
300	14	9	64800
400	14	9	86400
500	14	9	108000
600	14	9	129600
700	14	9	151200
800	14	9	172800
900	14	9	194400
1000	14	9	216000
100	15	9	22500
200	15	9	45000
300	15	9	67500
400	15	9	90000
500	15	9	112500

600	15	9	135000
700	15	9	157500
800	15	9	180000
900	15	9	202500
1000	15	9	225000
100	16	9	23400
200	16	9	46800
300	16	9	70200
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500	16	9	117000
600	16	9	140400
700	16	9	163800
800	16	9	187200
900	16	9	210600
1000	16	9	234000
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200	17	9	48600
300	17	9	72900
400	17	9	97200
500	17	9	121500
600	17	9	145800
700	17	9	170100
800	17	9	194400
900	17	9	218700
1000	17	9	243000
100	18	9	25200
200	18	9	50400
300	18	9	75600
400	18	9	100800
500	18	9	126000
600	18	9	151200
700	18	9	176400
800	18	9	201600
900	18	9	226800
1000	18	9	252000
100	19	9	26100
200	19	9	52200
300	19	9	78300
400	19	9	104400
500	19	9	130500
600	19	9	156600
700	19	9	182700
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300	20	9	81000
400	20	9	108000
500	20	9	135000
600	20	9	162000
700	20	9	189000
800	20	9	216000
900	20	9	243000
1000	20	9	270000
100	10	10	20000
200	10	10	40000
300	10	10	60000
400	10	10	80000
500	10	10	100000
600	10	10	120000

700	10	10	140000
800	10	10	160000
900	10	10	180000
1000	10	10	200000
100	11	10	21000
200	11	10	42000
300	11	10	63000
400	11	10	84000
500	11	10	105000
600	11	10	126000
700	11	10	147000
800	11	10	168000
900	11	10	189000
1000	11	10	210000
100	12	10	22000
200	12	10	44000
300	12	10	66000
400	12	10	88000
500	12	10	110000
600	12	10	132000
700	12	10	154000
800	12	10	176000
900	12	10	198000
1000	12	10	220000
100	13	10	23000
200	13	10	46000
300	13	10	69000
400	13	10	92000
500	13	10	115000
600	13	10	138000
700	13	10	161000
800	13	10	184000
900	13	10	207000
1000	13	10	230000
100	14	10	24000
200	14	10	48000
300	14	10	72000
400	14	10	96000
500	14	10	120000
600	14	10	144000
700	14	10	168000
800	14	10	192000
900	14	10	216000
1000	14	10	240000
100	15	10	25000
200	15	10	50000
300	15	10	75000
400	15	10	100000
500	15	10	125000
600	15	10	150000
700	15	10	175000
800	15	10	200000
900	15	10	225000
1000	15	10	250000
100	16	10	26000
200	16	10	52000
300	16	10	78000
400	16	10	104000
500	16	10	130000
600	16	10	156000
700	16	10	182000

```
|800 |16 |10 |208000|
|900 |16 |10 |234000|
|1000 |16 |10 |260000|
|100 |17 |10 |27000|
|200 |17 |10 |54000|
|300 |17 |10 |81000|
|400 |17 |10 |108000|
|500 |17 |10 |135000|
|600 |17 |10 |162000|
|700 |17 |10 |189000|
|800 |17 |10 |216000|
|900 |17 |10 |243000|
|1000 |17 |10 |270000|
|100 |18 |10 |28000|
|200 |18 |10 |56000|
|300 |18 |10 |84000|
|400 |18 |10 |112000|
|500 |18 |10 |140000|
|600 |18 |10 |168000|
|700 |18 |10 |196000|
|800 |18 |10 |224000|
|900 |18 |10 |252000|
|1000 |18 |10 |280000|
|100 |19 |10 |29000|
|200 |19 |10 |58000|
|300 |19 |10 |87000|
|400 |19 |10 |116000|
|500 |19 |10 |145000|
|600 |19 |10 |174000|
|700 |19 |10 |203000|
|800 |19 |10 |232000|
|900 |19 |10 |261000|
|1000 |19 |10 |290000|
|100 |20 |10 |30000|
|200 |20 |10 |60000|
|300 |20 |10 |90000|
|400 |20 |10 |120000|
|500 |20 |10 |150000|
|600 |20 |10 |180000|
|700 |20 |10 |210000|
|800 |20 |10 |240000|
|900 |20 |10 |270000|
|1000 |20 |10 |300000|
```

Question No. 4

An election is contested by five candidates. The candidates are numbered 1 to 5 and the voting is done by marking the candidate number on the ballot paper. Write a program to read the ballots and count the vote cast for each candidate using an array variable count. In case, a number read is outside the range 1 to 5, the ballot should be considered as a "spoilt ballot" and the program should also count the numbers of "spoilt ballots".

Code

```cpp
//QUESTION An election is contested by five candidates. The candidates are numbered 1 to 5 and the voting is d

#include <iostream>
#include <array>

int main()
{
```

```cpp
    std::array<int , 5> count;
    int spoiltVotes;
    for(int i; std::cin >> i; )
    {
        if(i > 5 || i < 1)
            spoiltVotes++;
        else
            count[i-1]++;
    }

}
```

$ ./bin/4.o

Input
7
3
5
4
7
1
3
7
4
7
3
1
6
5
2
3
1
6
3
1
6
7
1
2
5
2
4
3
7
7
1
1
6
7
7
5
2
2
4
4
5
4
2
2

6
7
1
7
4
7
3
7
2
7
6
4
7
1
4
6
5
6
7
2
2
4
1
4
5
6
2
5
1
4
4
2
5
3
5
1
3
4
5
6
3
1
6
1
7
3
2
6
4
6
7
1
7
4
1
2

Output