

 Edit

Assignment 1 Group 32 Discussion

22

[Vandit Jyotindra Gajjar](#)[All sections](#)

Hello everyone,

This is the discussion thread for the group 32 that includes ['a1779153', 'a1789295', 'a1636820', 'a1779233'].

I am Vandit Gajjar[a1779153]. I will update the reviews soon on this thread for other students and you're also welcome to discuss this first. Thank you.



○

[https://](https://myuni.adelaide.edu.au/courses/54378/users/109943)[Navpreet Singh Ahuja](#)<https://myuni.adelaide.edu.au/courses/54378/users/109943>

Wednesday

Hello All,

My Id: a1789295

Code review for **a1779233**

Module chat

- Your sum using school method is working for all test cases but multiplication using karatsuba multiplication algorithm is behaving erratically, it also fails for base other than 10. The for subtraction is not correct, for example, try using 100 2 10.

Please check the logic for subtraction

- Code is well-formatted with proper indentation.
- There are very few comments, I would suggest adding more comments, especially with subtraction
- This function, `extractIntNum`, is not required, you are getting input in a line and then `scanf`

```
1 void extractIntNum(string str, string &I1, string &I2, string &B)
2 {
```

- I think you forgot to remove this, at line 184, this is not required

```
1 system("pause");
```

- In function `schAdd` variables `a, b, c` are not required to be of long data-type, since these are single digits, `int`

```
1 long a, b, c = 0;
```

- This `resize` code is being used in all the 3 functions, `add`, `subtract`, `multiply`, so this can be moved to a function and reused, instead of writing multiple times

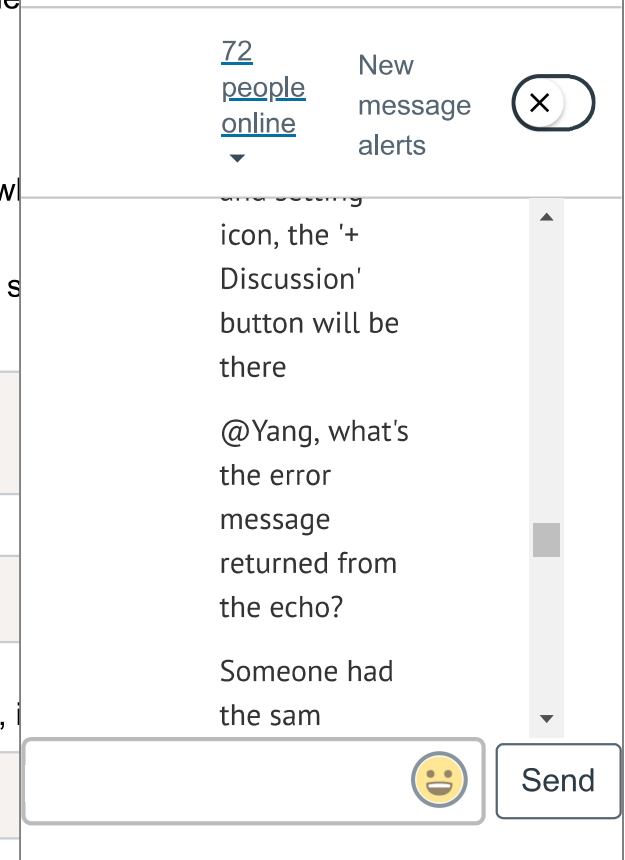
```
1 //resize the two string with same length
2 while (num2.size() != num1.size()) {
```

- In function `karMul`, no need to take `size` as long data type, `int` would suffice

```
1 long size = num1.size();
```

- In function `karMul`, here, the same value is being assigned to `size` variable in a while loop,

```
1 size = num2.size();
```



- o In function karMul, you are using a single loop to append 2*k and k zeros, This is rea

```
1 | for (int i = 0; i < n/*a0.size()*/; i++) {
2 |     p2 += "00";
3 |     add2 += "0";
4 | }
```

Code review for a1636820

- o Congratulations, all your test cases passed.
The code properly indented, divided into functions, but I would suggest improving the operands and operations, this makes code clean and well-formatted for example

```
1 | cin>>s1>>s2>>b;
```

this can be written as

```
1 | cin >> s1 >> s2 >> b;
```

or,

```
1 | if(s1.compare("0")==0 || s2.compare("0")==0){
```

can be written as

```
1 | if ((s1.compare("0") == 0) || (s2.compare("0") == 0)) {
```

- o Please add a comment, somewhere in the file which tells why you are using "str - 48", which is to convert it to int. Also, here typecasting (int) is not required, "s2.at(0) - 48" would work in same way.

```
1 | (int)s2.at(0)-48;
```

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- In the arguments of all functions, since using namespace std, here std::string is not re

```
1 | string addition(std::string add1, std::string add2, int base){
```

- Base conditions in Karatsuba function are not intuitive, please add more comments. Also, here since we have a single bit, single bit multiplication can be done instead of loop

```
1 |     if(len2==1){
2 |         for (int i = 0; i < (int)s2.at(0)-48; ++i){
3 |             product=addition(product,s1,base);
4 |         }
5 |         return product;
6 |     }
```

- In function karatsuba, instead of using a for loop, converting to int and then again con

```
1 | for(int i=0; i<a0_len;i++){
2 |     num1=(int)s1.at(i)-48;
3 |     num2=(int)s2.at(i)-48;
4 |     a0.insert(i,to_string(num1));
5 |     b0.insert(i,to_string(num2));
6 | }
```

Code review for a1779153

- Congratulations, all your test cases passed.
Adding references at the end and adding a short description comment block at the beginning is really great.
Every function has small documentation at the beginning, which is good, I would recommend try adding more comments inside the function blocks.
- main method is little messy, common code like converting string input to vector<int> can be moved to a function
- Resizing the vectors by padding zeros can be moved to a new function and reused in addition, subtraction and multiplication.

```
1 | while(I1.size() > I2.size())
2 | {
3 |     I2.push_back(0);
4 | }
```

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- o The logic for schoolMultiplication is not intuitive, please add comments why nested loops are used. This whole functionality can be avoided by using single bit multiplication (discussed in the lecture).

```
1 | vector<int> schoolMultiplication(vector<int> I1, vector<int> I2, int B)
2 | {
```

- o You are using school multiplication for the base condition when size is 3, instead of the recursive case when the size has reduced to 1.

```
1 | if (n == 3)
2 | {
3 |     return schoolMultiplication(I1, I2, B);
4 | }
```

I understand you are dividing the vector into subvectors a0, a1, b0, b1, this can be moved to the recursive case.

```
1 | for (int i = 0; i < I1.size() - n; i++)
2 | {
3 |     a1.push_back(I1[i]);
4 |     reverse(a1.begin(), a1.end());
5 | }
```

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Yan Li

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Saturday

Hi,

Thank you for your review. I learned a lot about string manipulations. Also I should've add more comments to explain the logic inside the function.

The base condition I used in Karatusba is either of the two number has one digit. In multiply will require school method multiplication. So I used adding instead of multipl

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Yesterday

Dear Navpreet,

Thank you for your in-depth feedback.

I completely agree with you about the main method which is messy, after receiving y separate function for converting the inputs. However, I did not understand your seco you have some time, can you elaborate more so that it will be helpful in the future. A learned some good stuff from your code as well.

Thank you again.

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Wednesday

Hi,

My ID: a1636820

To a1779153:

- Clear comment before each function which make the code easy to follow. And good use of what I should learn from.
- Implemented a school multiplication method for small numbers. However I don't think it is the best base since it will be simply putting zeros at the end of the number.
- I also encountered a warning message: comparison between signed and unsigned integers. The result of this program but it can be fixed by casting the size into an integer.
- Overall, the code is good and it works very well.

To a1779233:

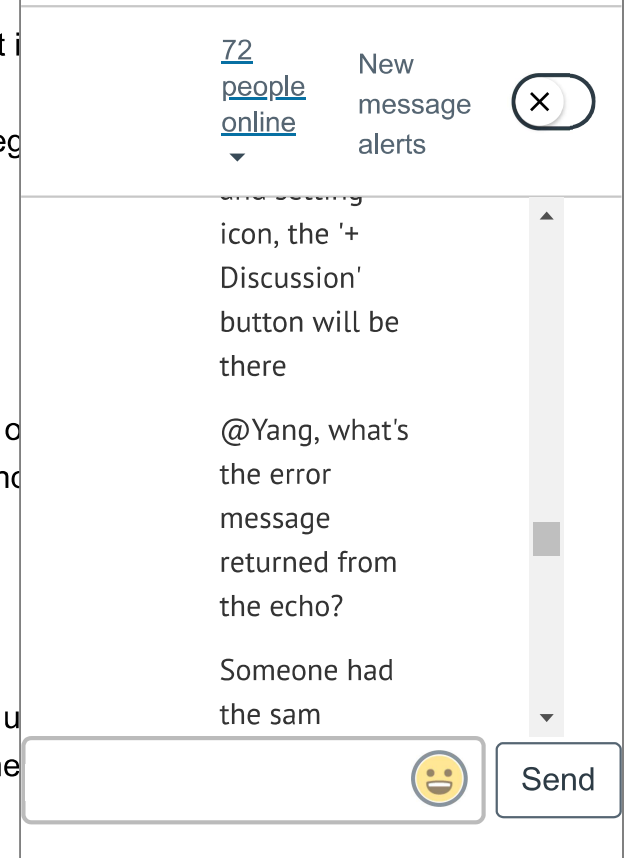
- Clear comment to make the code easy to follow.
- There is no erase function when the size of both number is 1. This will make the result of the program incorrect.
- When I was trying to multiply a large numbers, the output given is not correct. I don't know why. But I believe it happens somewhere multiplying the base.
- The rest of the logic is very clear.

To a1789295:

- Very detailed comments and the code has a clear logic and easy to understand. Good use of comments.
- In the school method of adding, your method did not require making the two number the same length. This is a good improvement.
- Also breaking large function to a group of small functions, which is good code reuse.

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Saturday

Hi Yan

Thank you for your feedback

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[Vandit Jyotindra Gajjar](#)

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Yesterday

Dear a1636820,

Thank you for your valuable feedback.

For the warning message, I have tried to implement your suggestion and it worked. In multiplication, I didn't know the test cases before writing the program thus implement cases, I never looked into that part but thanks for pointing this out.

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[Dalong Wang](#)

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Wednesday

Hello everyone,

My ID is a1779233.

To a1636820

About the main function, the logic is really clear. I also realized that the input of several parameters can be got by cin command in one line.

In the addition function, the std:: has been used as the keyword, which I am not familiar with. I think it is what I need to learn.

Though the logic of the subtract function is quite hard for me to understand, the way you used to erase the leading zero is what I prefer to learn.

The same functions such as the erase the leading zeros and the filling of zeros were used several times. Maybe this can be coded as independent functions so that you do not need to type the details of the function

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To a1789295

You have written very sophisticated codes with some parts difficult for me to follow, but do not worry. Acquiring different inputs with cin command in one line is what I did not realize to use. String stream and pointer are used in your shoolSum function and that is what I want to learn. Using arrays may be a good way to store the digit in strings, which I did not realize to try. Also, you have used the vectors in the subtract function to store the substring unit, which is a good idea.

To a1779153

The way you use to read the input and push into a vector may be too complicated. Using stringstream is easier.

I find the way you used in your code with vector is quite convenient in your functions and you should get familiar with this method.

Especially the reverse command makes the process of dealing with the calculation sequence easier.

The school multiplication you used to deal with B^n may be replaced by an easier way of doing it. Lines of code can be saved.

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[Vandit Jyotindra Gajjar](#)

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Friday

Dear a1779233,

Thank you for your valuable feedback, I appreciate for putting your efforts and taking your time to review my submission. I was unaware of the CIN command as you mentioned in the review comment one, and I have looked into it after receiving your review, I also have tried to implement it but I was not able to follow up. So I'll be thankful if you can provide me any blog or video file regarding so that I'll be able to follow that. The rest are positive comments, which helps me to understand that I'm in the right direction for solving certain problems.

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I think the way you chose is better after I realize how convenient using vector is about that.

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[Navpreet Singh Ahuja](#)

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Saturday

Hi Dalong

Thank you for your feedback

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[Yan Li](#)

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Saturday

Hi,

Thank you for your review. I think I should write some of the functions separately and call them when needed. This can avoid writing the same thing many times.

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Thursday

Hi everyone,

I will provide reviews for each of your submission in separate threads so that by the time I reply effectively on your review threads. I also apologize for the late reviews of your subn

Sincerely,

Vandit

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Thursday

Review for a1636820:

Hi a1636820,

Summary:

- First of all many congratulations on your submission. All test cases have been passed.

Strengths:

- The code is written in a very effective manner, it's easy to follow as you have added necessary comments on a certain logic. I want to learn this habit of commenting in my code where it is necessary.
- The use of recursion inline 153, 154, and 158 is good as recursion is always performing better.
- Overall, it is a very good code, I will mark the perfect score for this submission even t

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Issues:

- In your methods, you have used STD:: command before your input parameters, this is added: "used namespace std" inline 4. I have cross-validated by running your submission.
- No other issues, I was able to find as I have mentioned certain things on the encouragement.

Encouragement:

- As a programmer, I was able to get your logic on most of the parts, but if for some reason many functions. I understand that most of the people wanted to create a function in order to make it easier if you can achieve the results by basic loops and conditions and type forecasting. Particularly for this assignment we are not bound with time and space complexity, so creating functions because it is really easy to follow your code logic.

Final Comments:

- Perfect code, easy to follow, proper commenting, proper indentation (Which I will learn to improve on my next assignments). Overall I'll give full marks.

I sincerely apologize for my late review of your submission.

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Saturday

Hi,

Thank you for your review and suggestions, I realized that the std:: is not necessary for some of the codes. And I should be more careful in the later assignments

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Thursday

Review for a1636820:

Hi a1636820,

Summary:

- First of all congratulations on your submission. Even though not all test cases have b your best which I appreciate.

Strengths:

- The function you added named extractIntNum is a new thing that I learned from your
- I have tried and run all your submissions on the webserver to see how your thought p that from not passing all the case on your initial submission to getting a decent score all wanted to learn here. I encourage you to get this so far. Respect.

Issues:

- Inline 173 for "Pause is not necessary", I have removed that and run your submission and it works fine (it is also mentioned by Navpreet (a1789295)).
- I'm not able to get the logic of your subtraction as well as multiplication, which I'll try to debug and will let you know if I come up with any solution.
- You have added good comments on your school method for addition, but you haven't added necessary comments on your subtraction and karatsuba multiplication, which I will ignore because I somehow following your intuition for this logic.

Final Comments:

- Good comments on certain logic, indentation is also good, School method for addition is working fine but karatsuba multiplication is not working which I will be ignoring during my peer review score, because I truly appreciate your efforts to reaching to a solution from zero to getting some good score.

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I sincerely apologize for my late review of your submission.

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Thursday

Review for a1789295:

Hi, a1789295,

First of all congratulations on your submission. All test cases have been passed.

Strengths:

- The class you have created for the base is amazing, I have thought about that but was constrained by the (time and space constraint). But thank you for this, I was able to now implement this in future submissions.
- Good commenting, indentation, and logic. This is a far better good submission than most from your overall code, again thank you for this.

Issues:

- The only thing that I found which I completely did not understand is that singleBitMultiply function between lines 160-172. I truly appreciate if you provide me insight about the intuition behind using this during reflection.
- I had no other comments regarding your submission, as it eventually works fine.

Final Comments:

-- Everything is perfect except I have mentioned in the first issue, this submission seems to be better than our group's batch in a manner of logic. Thank you for this as it will help me in future to how to deal with class.

I sincerely apologize for my late review of your submission.

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Friday

Hi Vandit

Thank you for your feedback

So, in function singleBitMultiplication, I am converting numbers to integers and multiplying the original base. For example, let take the input as "4", "4", 8

Now, $4 * 4 = 16$

Then I convert 16 to base 8 => "20"

See, here MSB is $16/8$ and LSB is $16\%8$

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Saturday

a1789295

Reflection:

Thanks, everyone for the great feedback.

After running clang-tidy, I learned about memory leaks, I had no idea about that. I have fixed those using 'delete pointer'. Using clang-format, I was able to remove some extra empty lines

```

1 // remove the pointers
2 delete num1;
3 delete num2;

```

Edited by [Navpreet Singh Ahuja \(https://myuni.adelaide.edu.au/courses/54378/users/109943\)](https://myuni.adelaide.edu.au/courses/54378/users/109943) on 4 Apr at 19:48

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Saturday

Reflection from a1779233

Thanks for all the helpful recommendations and that gives me great ideas to learn. According to the code. The main changes are listed below.

The cin command to get input is adopted so that lines of code for a function to extract number from the system("pause") command is removed. As I am new at cpp, I am not sure why this command is needed. I hope someone could give me some advice.

The data type of all variables has been reorganized.

A new function for resizing the string, which is called in three other functions, is created.

Also, the bug that misestimates the necessity of borrowing digit from forwarding bit in the subtraction function has been found so that the multiplication can pass all tests now.

← [Reply](#) 👍 (1 likes)



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system("pause") is used to pause the program and wait for keyboard input.

We don't need that because, for the assignment, our task is to create a script, which the execution the program should close.

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Yesterday

Hi guys,

Thank you so much to all of us for taking part in this discussion. I learned some good stu
codes as well. It helped me to improve my self regarding the documentation and program
help to each other even if this group will not going to be formed in the next assignments.

Thank you again. Cheers!

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Yesterday

Hi guys,

Thank you for your review. I have learned a lot form your feedback.

I now have put more effort on my indentation and make the core looks better. Then I have a separate function. And for some part inside the function, I have added more comment to remove some unnecessary code.

I will pay more attention on these issues in the future assignments.

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