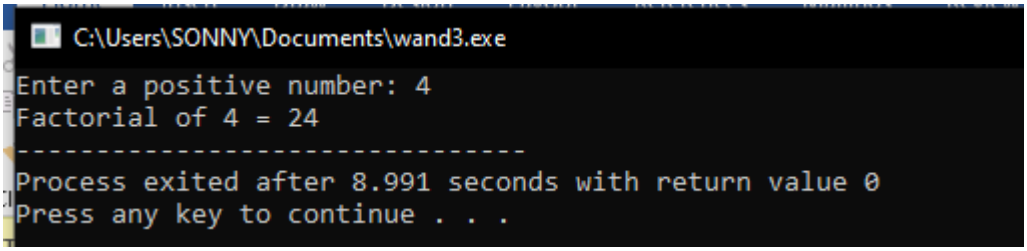
T/UDOM/2020/05595

(a)Write a c++ program to implement Recursion, use your names as variable names, by the use of RAM diagrams show demonstration of how these codes executes.

```
#include <iostream>
using namespace std;

int factorial(int);

int main()
{
   int phyl,result;

   cout << "Enter a positive number: ";
   cin >> phyl;
   result= factorial(phyl);
   cout << "Factorial of " << phyl<< " = " << result;

   return 0;
}

int factorial(int phyl){

   if (wand > 1){
      return phyl* factorial(phyl- 1);
   }
   else{
      return 1;
}
}
```

OUTPUT



RAM Diagrams for illustration of the program.

RAM before declaration of variables

RAM

free
free
free
free

RAM after variable declaration

int phyl	reserved
int result	reserved
int factorial	reserved
free	free

RAM after variable initialization

int phyl	4
int factorial	4
int result	4
free	free

Firstly

int phyl	4
int factorial	4*(4-1)
result	12
free	free

Secondly

phyl	4
factorial	12*(3-1)
result	24
free	free

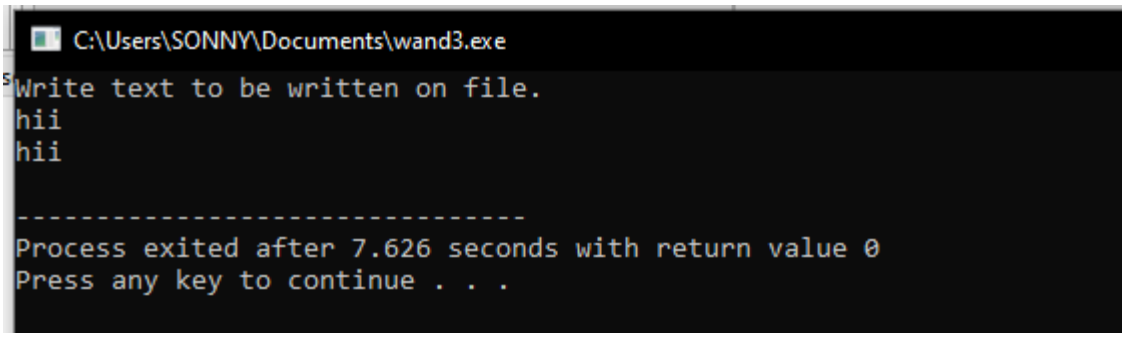
Lastly RAM print as

phyl	4
factorial	24*(2-1)
result	24
free	free

(a) write a C++ program to implement File Handling(read and write into a file), use your names as variable names, by the use of RAM diagrams show demonstration of how these code execute.

```
#include <iostream>
#include <fstream>

using namespace std;

int main(){

  char phyl[20];

  fstream file;
  file.open ("phylFile.txt", ios::out | ios::in );

  cout << "Write text to be written on file." << endl;
  cin.getline(phyl, sizeof(phyl));

  // Writing on file
  file << phyl << endl;

  // Reding from file
  file >> phyl;
  cout << phyl << endl;

  //closing the file
  file.close();
  return 0;
}
```

OUTPUT



RAM Diagrams for demonstration

RAM before declaration

RAM

free	free
free	free
free	free
free	free

RAM after variable declaration

String phyl	reserved
free	free
free	free
free	free

Therefore the Data stored in RAM, will also be stored in a disk because the disk store Data permanently.

RAM

String phyl	Hii
free	Free
free	free

DISK

phylFile.txt	hii