“Heaven’s Light is Our Guide”

Rajshahi University of Engineering & Technology

Department of Electrical and Computer Engineering

Course No: ECE-3118

Course Title: Software Engineering & Information System Design Sessional

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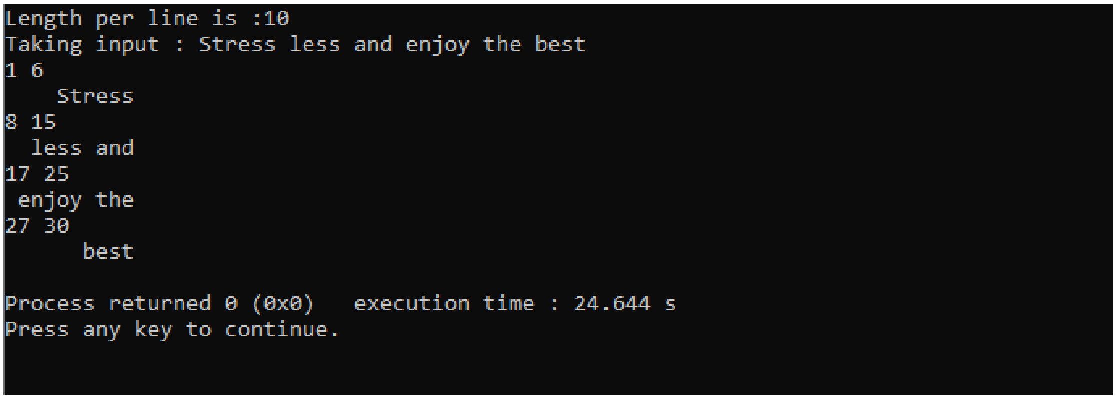
Experiment Name: Coding for line indentation using Object Oriented Programming and 15 best practices of software engineering.
Sample Code:

```
#include<bits/stdc++.h>
using namespace std;

class align
{
private:
int _lengthPerLine;
public:
/** Set the length per line **/
align(int len)
{
_lengthPerLine=len;
}
/** Return length per line **/
int getLen()
{
return _lengthPerLine;
}
string s;
/** Take input from user **/
void inp()
{
getline(cin,s);
}
/**Stores the resultant string for each line **/
vector<string>res;
/** Stores the starting position of each line **/
vector<int>pos;
/** process the input for required indentetion **/
void process()
{
int flag=0;
/** Strores the string for required length **/
string tmp;
/**stores each word **/
string word;
/**Stores the starting position of each line **/
int start=-1;
for(int i=0; i<s.size(); i++)
{
if(s[i]==' ' and !flag)
```

```
{
continue;
}
++flag;

if(start == -1) start=i+1;
if(s[i] == ' ')
{
if(tmp.size()) tmp+=' ';
if(tmp.size()+word.size()>getLen())
{
res.push_back(tmp);
pos.push_back(start);
tmp.clear();
tmp+=word;
start=i+1-word.size();
word.clear();
}
else if(tmp.size()+word.size()==getLen())
{
tmp+=word;
res.push_back(tmp);
pos.push_back(start);
word.clear();
tmp.clear();
start=i+2;
}
else
{
tmp+=word;
word.clear();
}
continue;
}
word+=s[i];
if(i==s.size()-1)
{
pos.push_back(start);
if(tmp.size()) tmp+=' ';
if(tmp.size()+word.size()>getLen())
{
res.push_back(tmp);
start+=tmp.size();
pos.push_back(start);
res.push_back(word);
}
else
{
tmp+=word;
res.push_back(tmp);
}
}
}

}
/** Print the result **/
void print()
{
for(int i=0; i<res.size(); i++)
{

string ss=res[i];
while(ss.back()==' ') ss.pop_back();
cout<<pos[i]<<" "<<pos[i]+ss.size()-1<<endl;
reverse(ss.begin(),ss.end());
while(ss.size()!=getLen()) ss+=' ';
reverse(ss.begin(),ss.end());
cout<<ss<<endl;
}
}

};

int main()
{
align work(10);
cout<<"Length per line is :"<<work.getLen()<<endl;
cout<<"Taking input : ";
work.inp();
work.process();
work.print();
}

```

Output:



```
Length per line is :10
Taking input : Stress less and enjoy the best
1 6
    Stress
8 15
  less and
17 25
 enjoy the
27 30
      best

Process returned 0 (0x0)   execution time : 24.644 s
Press any key to continue.
```

15 best practices of software engineering :

1. Select talent and appropriate resources

2. Choosing the Appropriate Design and Development Process.

3. Make Reasonable Budgets and Estimates

4. Set smaller milestones

5. Define the requirements well

6. Define System Architecture

7. Optimize your application design

8. Implement the code effectively

9. Rigorous testing and validation

10. Documentation

11. Schedule code review sessions

12. Ensure management of control of software sources

13. Quality Control

14. Effective Installation and Deployment

15. Support and Maintenance Strategy