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BSCS 2A
DAA
Assignment 1

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1.
```
procedure A(N)

  i := 1
  while  ( i<=n)
     print("CS111")
     i=i+3
```

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- 1
- n
  - 1
  - 1

T(n) = ((1 + 1) * n) + n + 1
     = 3n + 1

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2.
```
procedure A(n)

  for (i=1; i<=n; i++)
     for(j=i; j<=n; j++)
        for(k=1; k<=50; k++)
           print("CS111");
```

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- n
  - n
    - 50
      - 1

T(n) = (1 * 50) * n * n
     = 50n²

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3.
```
Assume n>=2:

procedure A(n)

  while(n>1)
     n=n/2;
     print("CS111");
```

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- log(n)
  - 1
  - 1

T(n) = ((1 + 1) * log(n)) + log(n)
     = 3log(n)

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4.
```
procedure A(n)

  for (i=1; i<=n; i++)
     for(j=1; j<=n; j=j+i)
        print("CS111");
```

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- n
  - log(n)
    - 1

T(n) = 1 * log(n) * n
     = n * log(n)

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5.
```
procedure A(n)

  for(i=1; i<=n; i=i*3)
     if(x > y)
        print("CS111");
        x = y;
     else
        y =x
```

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- log₃(n)
  - 1
    - 1
    - 1

  - 1

T(n) = ((max(1,2) + 1) * log₃n) + log₃n
     = 4log₃n

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6.
 	
``
procedure A(N)
 	
   i := 1
   while   (i<=n)
      print("CS111")
      i=i*2
``
	- 1
	- log(n)
	  - 1
	  - 1
	T(n) = 2 * log(n) + 1
	= 2log(n) + 1

7.
 	
``
procedure A(N)
 	
   for i=1 to n
      for j=1 to i²
         print("CS111")
``
	- n
	  - n^2
	    - 1
	T(n) = n * n² * 1
	= n^3

8.
 	
``
procedure A(n)
 	
   for (i=1; i<=n; i++)
      for(j=1; j<=i²; j++)
         for(k=1; k<=n/2; k++)
            print("CS111");
``
	- n
	  - n^2
	    - n/2
	      - 1
	T(n) = n * n² * n/2 * 1
	= n^4 / 2