

Unit 1 – ICS4U0 – Java Applets & Strings

Sample Test – September 21, 2026

Name: _____

Total	Knowledge 	Communication 	Thinking 	Application 
(100)	(24)	(21)	(21)	(34)

Knowledge

1. This is the original String:
String b = "BasketBALL";

0	1	2	3	4	5	6	7	8	9

/10

Match the code with the output.

10	a. System.out.println ((int) b.charAt (1));
2	b. System.out.println (b.charAt (0));
0	c. System.out.println (b.charAt (5));
97	d. System.out.println (b.compareTo ("hockey") < 0);
BASKETBALL	e. System.out.println (b.equals ("hockey"));
basketball	f. System.out.println (b.indexOf ('s'));
BasketBAMM	g. System.out.println (b.indexOf ('B'));
false	h. System.out.println (b.length ());
true	i. System.out.println (b.replace ('L', 'M'));
B	j. System.out.println (b.substring (0, 4));
t	k. System.out.println (b.substring (0, 1) + b.substring (4, 9));
Bask	l. System.out.println (b.toLowerCase ());
BetBAL	m. System.out.println (b.toUpperCase ());
BB	n. System.out.println ("" + b.charAt (0) + b.charAt (0));

2. Use this code to fill in the memory diagram. Then, write out what each substring prints.

/5

String f = "cricket and soccer";

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17



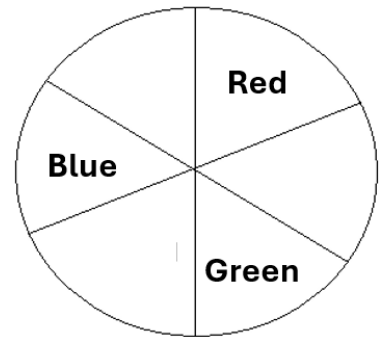
(a)	System.out.println (f.substring (0, 5));	
(b)	System.out.println (f.substring (13, f.length ()));	
(c)	System.out.println (f.substring (f.length () / 4, f.indexOf (' ')));	

3. Write the code required for each colour. /6

```
blue      title.setBackground(new Color(____,____,____));
cyan      title.setBackground(new Color(____,____,____));
green     title.setBackground(new Color(____,____,____));
yellow    title.setBackground(new Color(____,____,____));
red       title.setBackground(new Color(____,____,____));
magenta   title.setBackground(new Color(____,____,____));
white     title.setBackground(new Color(____,____,____));
black     title.setBackground(new Color(____,____,____));
```

4. Fill in this colour wheel based on the computer colours. Use the proper colour names.

/3



Communication

5. Fill in the words that match the descriptions given. /10

	(a) A type of variable that holds a group of chars.
	(b) A String method that returns a char.
	(c) An attack that can break a Caesar shift.
	(d) An encoding technique for translating letters to binary.
	(e) Encryption named for an animal and the Ancient Roman language.
	(f) Encryption that can be decrypted with a shiny reflective surface.
	(g) Text that is not easily read.
	(h) A type of testing where you don't look at the code.
	(i) The opposite function to charAt.
	(j) A type of widget used for mouse input.

6. Why is testing important? Provide a specific example. (3 points, at least 3 sentences) /3

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.....

.....

.....

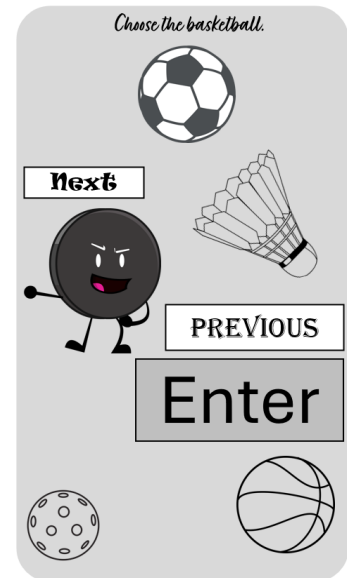
.....

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7. Name each PARC principle and explain how each is broken by this app.

P	
A	
R	
C	

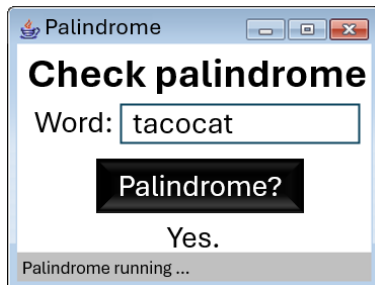


/8

Thinking

8. White Box and Black Box test this app.

/9



A palindrome is a word that reads the same backward as forward.

For example "racecar" or "nurses run".

Word	Black Box Test Case
Word	White Box Test Case & Line Number

```

1  public void actionPerformed (ActionEvent e){
2      String s = input.getText();
3      String rev = "";

4      for (int i = s.length () - 1 ; i >= 0 ; i--)
5          rev += s.charAt (i);

6      if (rev.equals (s))
7          output.setText ("Yes");
8      else
9          output.setText ("No");
10 }

```



9. Decrypt the following messages. This chart may be useful:

/12

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z

cbtlfucbmm ofu

ockeyhay katessay

enozdne llabtoof

3 18 9 3 11 5 20

Hint: vgmcfvrgzz = basketball, Hint #2: All punctuation ' , . is at it appears.

rgcf g mfgr gke y'zz rfzz opt g rgzf gzz

gvptr vgzzfr, vgmcfvrgzz gke vgmfvrgzz.

Application

10. This is the original String: String h = "hockey SKATES";

/10

0	1	2	3	4	5	6	7	8	9	10	11	12

Write the code to produce the following output:

(a)	HOCKEY SKATES	System.out.println() ;
(b)	hockey skates	System.out.println() ;
(c)	A	System.out.println() ;
(d)	hockey PKATEP	System.out.println() ;
(e)	hockey	System.out.println() ;
(g)	13 //the length	System.out.println() ;
(h)	104 //ASCII of h	System.out.println() ;
(i)	2 //position of c	System.out.println() ;
(j)	S T ATE	System.out.println() ;
(k)	ok	System.out.println() ;

11. Make a loop to count number of times `cat` appears in a string. The letters should be all lowercase.

/8

Example 1: Word? catdogcatcattur nip 3 cat(s)	Example 2: Word? c 0 cat(s)	Example 3 Word? cahatmatsatac 0 cat(s)	Example 4 Word? tacocat 1 cat(s)
--	--	---	---

```
String s = IO.inputString("Word? ");

//Make s lowercase:

s = _____;

//if less than 3 characters, print error message

if(_____)
{
    System.out.println(_____);
}

//else count cat

else
{
    //set up variable to hold count

    int count = _____;

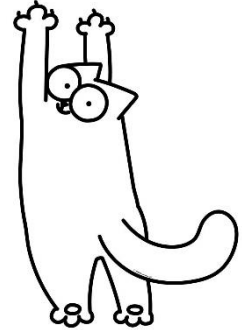
    //loop only to the character which is 3 from the end

    for(_____; _____; _____)
    {
        //check three places in a row for c, a, t

        if(_____==' ' && _____==' '
            && _____==' ')
        {
            _____
        }
    }

    //print results

    System.out.println(_____);
}
```



12. (a) Fill in init for the Encryption App (shown in on the right)

```
import java.awt.*; import javax.swing.*; import java.applet.Applet; import java.awt.event.*;
public class Encrypt extends Applet implements ActionListener
{
    JTextField word;

    //The other global variable:
    _____;

    public void init ()
    {
        resize (300, 100);
    }

    //The first label: (Font is Arial, Font.BOLD and 30 pt)
    JLabel title = new _____ ("_____");
    title.setFont (new Font ("_____", Font._____, ____));

    //The prompt
    JLabel pmt = new _____ ("_____");

    //The textfield:
    word = new _____ (_____);

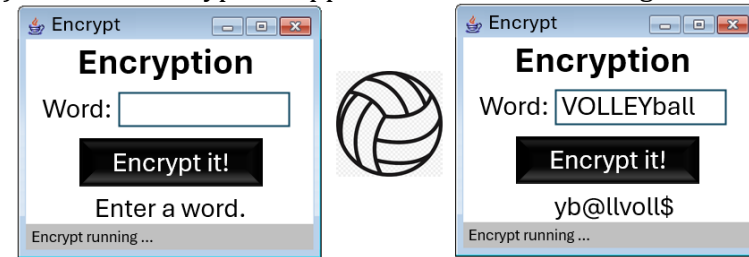
    //The button: (Black background, white writing)
    JButton b = new _____ ("_____");
    b.setBackground(_____);
    b.setForeground(_____);
    b.addActionListener(_____);
    b.setActionCommand("_____");

    //The last label:
    _____;

    //add the widgets:
    add(_____);
    add(_____);
    add(_____);
    add(_____);
    add(_____);

} //init
```

(b) Fill in the Encryption App's actionPerformed using the comments.



/16

```
public void _____ (ActionEvent e)
{
    if(e.getActionCommand().equals(_____))
    {
        String s = _____.getText();

        //switch it to lowercase

        _____

        //replace all 'a' with '@'

        _____

        //replace all 'e' with '$'

        _____

        //chop the string in half

        String first = _____

        String last = _____

        //switch the two halves

        _____

        //output on the screen

        _____.setText(_____);

    } //if
} //actionPerformed
} //Applet
```